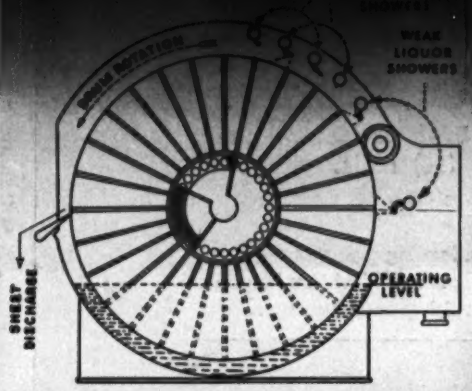
Paper

JULY 6, 1951

HOW CAN STEEL STRAPPING BE CONSERVED? . . . SEE PAGE 19

WHAT CAN BE DONE TO REDUCE ACCIDENT RATES? . . . SEE PAGE 20

Washes Sulfite Pulp – 2 stages on 1 drum



Swenson-Nyman Pulp Washers of the type used for sulfite pulp

The diagram at left illustrates a sectional view of a Swenson-Nyman Pulp Washer, and the valve arrangement for maintaining separation of strong and weak sulfite liquors. Pulp emerges well washed at high consistency; with less dilution, thus reducing evaporation costs.

SEND FOR BULLETIN E-108

Swenson Spray Dryer converts sulfite liquor to dry powder in 30 seconds. Information on request.

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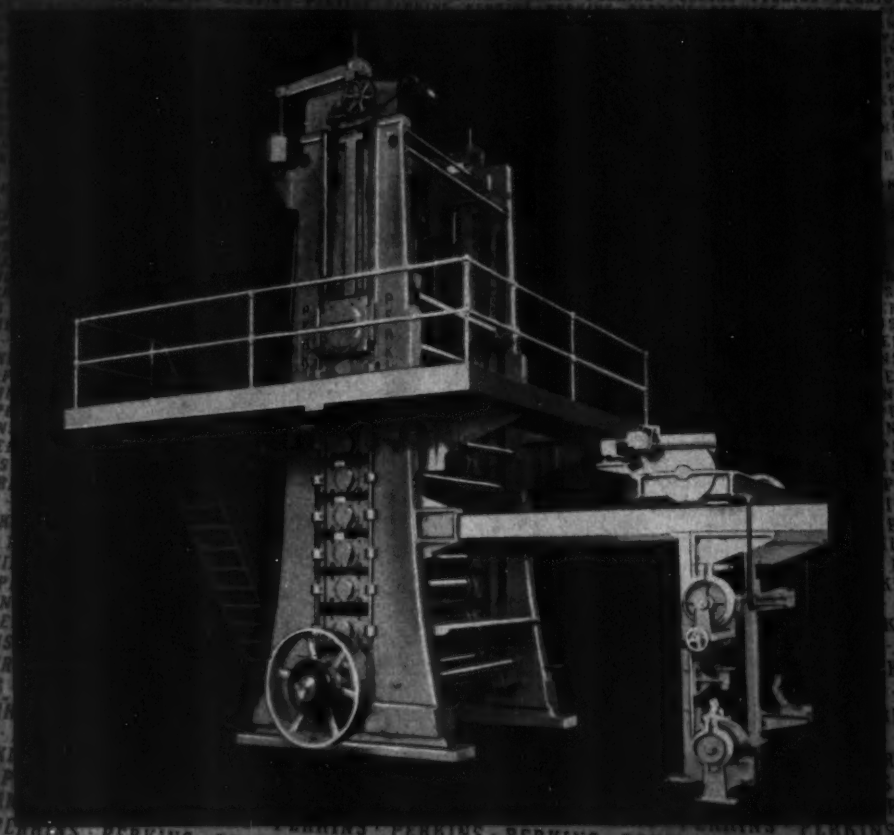

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Perkins ten-roll 64" face Web Supercalender with provision for fourteen (14) rolls.

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- **Lever pressure with pneumatic loading**
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SEE HOW EASY IT IS to work on the packing and clear water seal of this Allis-Chalmers Type PW Paper Stock Pump. And notice that the casing bolts are in slots instead of holes. This makes it possible to remove the rotating element in five minutes and replace it in the same quick time. Neither suction nor discharge piping need be disturbed. Thus maintenance is easy and fast, maintenance costs are low.

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FOR THE PAPER INDUSTRY

Paper TRADE JOURNAL

VOL. 133 JULY 6, 1951 No. 1

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NEXT WEEK

SUPERINTENDENTS ISSUE

If you were not one of the more than 700 individuals lucky enough to attend the best convention of the American Pulp and Paper Mill Superintendents' Assn. in many years, then the next best thing is to read next week's issue.

REMEMBER THESE DATES

JULY 24: American Pulp & Paper Mill Superintendents Assn., Michigan Division, Annual Field and Sport Day, at the Kalamazoo Country Club, Kalamazoo, Mich.

SEPT. 6-8: American Pulp & Paper Mill Superintendents Assn., New York, Canadian Division, meeting at Saranac Inn, Saranac, N. Y.

SEPT. 14-15: American Pulp & Paper Mill Superintendents Assn., Northeastern Division, meeting at Poland Spring House, Poland Spring, Maine.

SEPT. 14-15: American Pulp & Paper Mill Superintendents Assn., Northwestern Division meeting at Northern Holiday Resort, Marenesco, Mich.

SEPT. 16-19: American Institute of Chemical Engineers, Regional Meeting, French Lick, Ind.

SEPT. 20: American Pulp & Paper Mill Superintendents Assn., Michigan Division, Fall Meeting at Hotel Harris, Kalamazoo, Mich.

OCT. 10-12: American Pulp & Paper Mill Superintendents Assn., Southern and Southeastern Div's., George Washington Hotel, Jacksonville, Fla.

Oct. 29-31: National Foreign Trade Convention, Waldorf Astoria, New York City.

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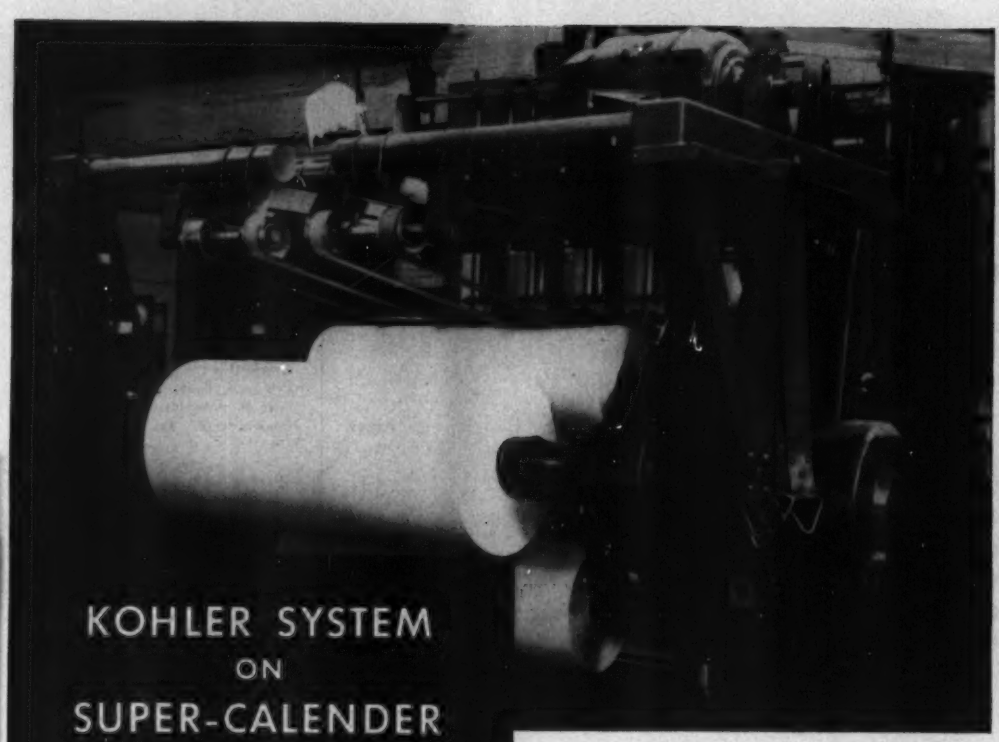


KOHLER SYSTEM ON SUPER-CALENDER

The Kohler System—combination unwinding and winding reel—on a super-calender at a northern coating mill, should arouse the interest of other mills operating super-calenders.

This equipment assures constant uniform tension. It eliminates down time due to loading and unloading. It has brought about a reduction in "snap offs." It has very substantially increased production.

Operating Procedure

The reel unwinds from the upper (rear) position under control of the Kohler running belt tension. The calendered web is rewound on the bottom (rear) position under control of the winder motor mounted above the machine.

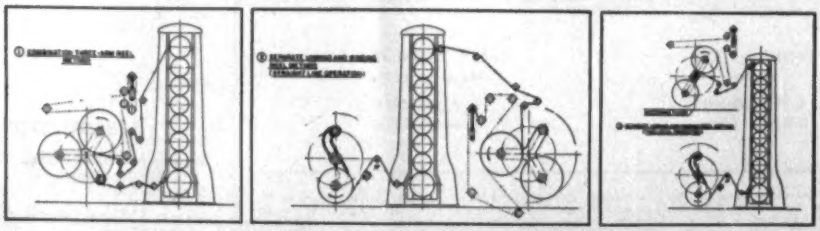
Unloading of calendered rolls and loading of uncalendered rolls take place at the front position by means of an electric hoist and while the stack is running. Roll cores are chucked in ball bearing spindles without the use of shafts.

While the stack is operating, splice is prepared on the fresh roll, which roll is pasted at threading speed to the expiring web. A momentary stop is then made to strike over the winding web to the core of the roll just exhausted. Time—a matter of seconds instead of the several minutes usually required.

Kohler System combination unwinding and winding reels are in service on a number of super-calenders—at paper mills and converting plants.

For more complete data write—

DILTS MACHINE WORKS, Fulton, N.Y. (K)



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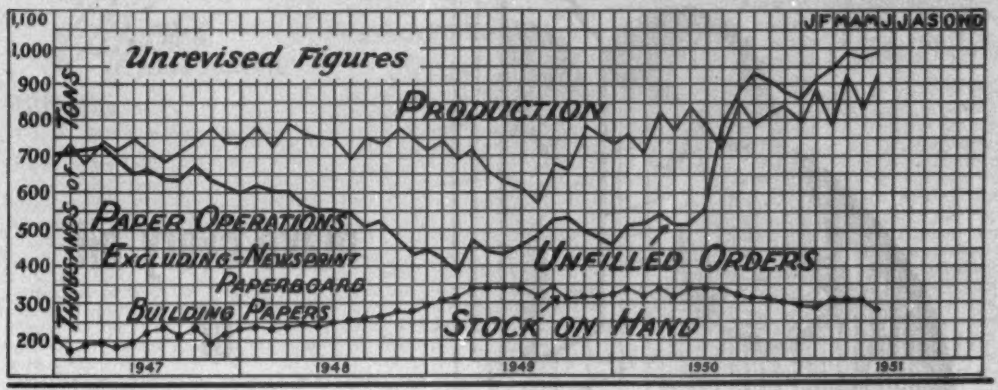

Weekly Brief of Important Figures

Source	Production	WEEK ENDING June 23, '51	May 26, '51	June 24, '50
APPA	Paper Production Percent Capacity[a]	98.8	103.8	99.5
	Unbl. Kraft Paper Production Percent	101.8	99.1	94.7
NPA	Paperboard Operating Ratio Percent Inch Hours	103	102	94
		May 1951	**Apr. 1951x**	**May 1950**
APPA	Paper Production[e] (Except Newsprint and Building Papers) Tons	921,000	874,087	842,500
	New Orders Tons	904,000	906,748	836,000
	Unfilled Orders Tons	996,500	1,016,525	535,065
	Shipments Tons	923,000	875,577	842,000
		[d]May 1951	**Apr. 1951**	**May 1950**
NPA	Paperboard Production Tons	1,251,633	1,006,972	934,600
	New Orders Tons	1,264,120	956,085	964,000
	Unfilled Orders Tons	658,722	646,878	395,500
	Our Customers Activities Index[1]	**Latest Mo.[b]**	**Previous Mo.[b]**	**Year Ago[c]**
FRS	Manufactures Total Index	231	230	197
	Durable Mfg. Index	275	275	221
	Nondurable Mfg. Index	195	194	178
	Chemical Products Index	299	296	253
	Mfg. Food Products Index	154	150	150
	Printing and Publishing Index	185	178	174
ODC	Magazine Advg.-Printer's Ink Index	338	343	327
	Retail Sales Combined Adjusted Index	341.1	342.3	309.8
	Drug Index	232.1	241.2	224.6
	General Merchandise Group Index	327.5	316.6	293.0
	Grocery and Combination Index	431.0	432.7	378.8
	Prices Index			
BLS	Consumers Price Index[1]	184.6	184.5	168.5
	Wholesale all Commodities[2]	183.5	184.0	152.9
	Wholesale Foods[3]	185.7	186.6	155.3
	Commodities other than Farm Products and Foods[3]	172.1	172.4	146.4
	Wholesale Pulp and Paper[3]	196.2	196.3	155.4
	Purchasing Power of Dollar, Consumers Prices[1]	54.2	54.2	59.3
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	429.4	433.6	337.2
	Unemployment Compensation Initial Claims (M)	983	719	1,543
	Miscellaneous Carloadings–Thousands of Cars	1,580	1,979	1,434
	Electric Output (Million KW hr.)	34,431	36,172	30,191
PTJ	Average 32 P & P Common Stocks as of June 30	$36.65	$38.49	$32.32

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[3] New 6-7 day basis.
[c] For Five Weeks.
[d] For details see APPA Monthly Statistical Summary—April 1951 Estimated Figures
[b] Latest Month Available on Request
x Revised figures.

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Wise and efficient use of available stainless steel stocks can go a long way to making sure that all defense and industry needs are met.

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Paper TRADE JOURNAL

TRENDS

Office of the Paper Trade Journal,
Thursday, July 5, 1951.

Price Jumble Takes On Form

The price jumble which resulted when stop-gap controls enacted on June 30 banned further rollbacks and froze manufacturers' prices at then current levels has begun to take shape, observers believe.

Issuance of GOR 13 (General Overriding Regulation) which covers the extent of the June 30 price freeze; also OPS interpretation that the wood pulp pricing order (CPR 49) was in effect at the time of the rollback ban, has clarified two major muddles, at least officially.

Extent of Price Freeze (GOR 13)

Involved in the confusion is the amendment to the joint-Congressional resolution which was enacted into law on June 30, 1951, and which barred any price rollbacks to July 31, 1951, on items not now under controls.

Specifically, the order stated that the authority of the Defense Production Act "shall not be exercised during the period June 30, 1951, to July 31, 1951, inclusive, to place into effect, or permit to become effective a price ceiling for any material or service lower than the ceiling in effect for such material or service on the date of the enactment of this resolution."

The bill was signed into law by President Truman on the afternoon of June 30, 1951, it is reported.

Later in the day, OPS issued a GOR which froze ceiling prices of certain manufactures at June 30 level. Misunderstanding as to the extent of this freeze served to complicate matters.

Coverage under this Regulation 13 is limited to: CPR 22, general manufacturing; CPR 30, machinery and related manufactured goods; CPR 41, shoe manufacturing; CPR 45, apparel; CPR 18, wool yarns and fabrics; CPR 37, primary cotton textiles.

The effect of this regulation, says OPS, is to eliminate all requirements for rollbacks after June 30, 1951, and to freeze price provisions in effect on June 30, 1951.

Pulp Exempted from CPR 22

Wood pulp producers were exempted from the regulations of CPR 22 in Amendment 5 of that order dated 5/28, which reads, in part:

"The Office of Price Stabilization is now completing a tailored dollars-and-cents regulation for domestic and imported woodpulp. . . . Woodpulp remains under the provisions of the General Ceiling Price Regulation until the specific dollars-and-cents prices of the forthcoming order become effective."

Tailored ceiling price for wood pulps is CPR 49 which, according to wording of the order, became effective June 30, 1951.

OPS Holds CPR 49 In Effect

Center of the price confusion, so far as the pulp and paper industry is concerned, was held by the wood pulp pricing order, CPR 49, scheduled to become effective at 12:01 a.m. June 30, 1951. Since the order rolls back many domestic pulp prices, and sets a ceiling on buying prices for overseas pulps, the Congressional ban of June 29 could wipe out months of OPS and NPA planning for the domestic pulp supply.

Should the rollbacks be banned, more Swedish tonnages could come to this market. Consumers wanted to know what would the price be for third quarter reservations.

Still others raise the question of contracted tonnages which were invoiced on June 30, 1951. For those dealers, is that not the price which is frozen by Congressional ban, it is asked.

To answer these and many other questions, counsel for the Office of Price Stabilization has rendered an interpretation of the regulation: CPR 49, the wood pulp pricing regulation was in effect when the ban on rollbacks was signed into law.

Unofficially, it is reported that counsel and secretaries of the American Pulp and Paper Association concur in this decision.

Pulp Prices VS Waste Paper

With all the inequities which gripe U. S. pulp producers, agents and consumers, the pricing order for woodpulps is now adjudged to be effective.

OPS delay in releasing the ceiling order for waste paper substitutes for pulps has, however, created a market situation which is upside down. Bleached sulfite pulps are frozen at $140, but waste paper substitutes have a GCPR ceiling of $240, with spot prices known to be higher than that level.

Similar topsy-turvy conditions exist in the unbleached kraft grades where unbleached sulfate sideruns are priced in the woodpulp order at $132.50, while 100 percent new kraft cuttings (sideruns and rejects) in the waste paper market range up to $160. Manila tab cards, substitutes for unbleached sulfites, are frozen by the January 25 freeze to $170/$185, though higher prices are being asked. Unbleached sulfite pulps are frozen to $132.50 in the CPR 49.

Pulp Set-Aside Order

Almost simultaneously with imposition of the pricing regulation was released the chemical woodpulp order, M-72, with its limits of 95 percent on consumption (based on 1950 use) 45-day supply restrictions on inventories (effective September 1) and 3 percent production pulp set-aside order to integrated producers (effective July 1).

This withholding provision, says President Robert H. Evans of the Association of Pulp Consumers to his members, differs from World War II Pulp Allocation Order in that it seeks to establish a voluntary distribution pattern whereby integrated mills are expected to offer their 3 percent reserve production to consumer mills of their own choice.

"This is the way the reserve production section is expected to work," says Mr. Evans. "A producer is supposed to estimate his quarterly production of different grades of chemical woodpulp sufficiently in advance so that not later than the first of the month preceding the quarter he can offer 3 percent of these amounts for voluntary sale. . . . Consumers should not be backward in making purchase offers for integrated pulp which they consider suitable for their own use, even though not much will be delivered at prices equal to regular domestic price ceilings, since OPS will have to give some price recognition to the extra costs of drying on paper machines, and to the extra transportation costs of high moisture pulps.

"It should be noted that the 3 percent reserve production applies not only to the production of pulp mills in the U. S. but also to imports of captive pulp from Canadian mills. Moreover, the reserve production is in addition to any domestic sales that such mills may have made during the first quarter of 1951."

Mr. Evans' letter also directs attention to the fact that some producers also consume market pulps. "In such cases, they may prefer to keep their reserve production for their own use and further reduce their authorized use of market pulp by the same amount. This is specifically permitted by the order, and, if invoked, should free that much market pulp for non-integrated mills."

Swedish Offerings About 50%

Offerings of Swedish pulps to their contract customers at ceilings for overseas pulps established by CPR 49 are about 50 percent of reservations, though some are as low as 30 percent, Swedish agents state.

Market Prospects

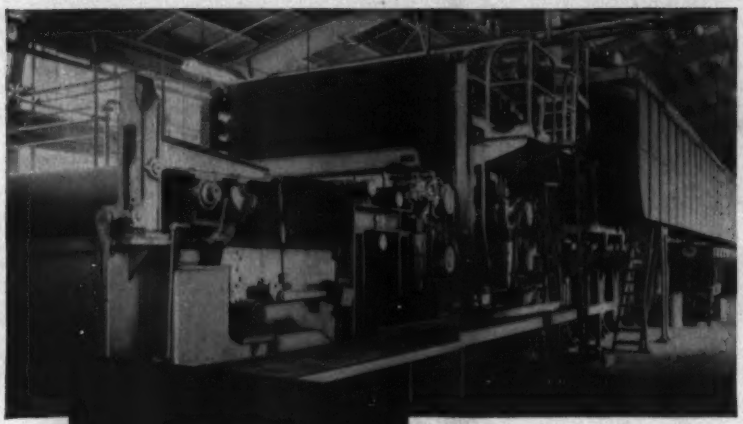
Market prospects for the immediate future as many in the industry see them are a deeper than usual summer dip in paper demand because of the heavier inventory position and reaction to months of forward buying.

Most observers believe pulp consumers will be able to build pulp inventories to wanted size at ceiling prices, and that waste paper grades will rapidly tumble to their relative positions pricewise. —E. P. N.

Paperboard Production (Tons)*

	June 23 1951	June 16 1951	June 24 1950
Production	244,969	243,313	211,027
New Orders	173,687	193,953	208,738
Unfilled Orders	572,952	649,604	390,879

* Source: NPA.



DOWNINGTOWN FELT MACHINE at The RUBEROID Co. mill, Mobile, Alabama

New Downingtown Felt Machine from wet end consisting of a cross-flow mix box (not shown) and Conflow vat illustrated in the foreground, a press section with two plain presses and stands for the future addition of a suction primary press. In the background is a two deck dryer section with forty-two 4'0" diameter dryer rolls.

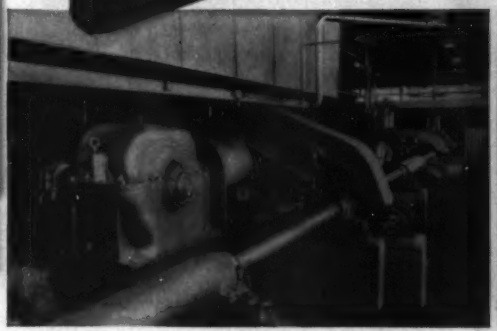
30% per day OVER designed production rate

Here is a *completely* new, integrated roofing felt mill recently built by The RUBEROID Co. From 1948 until its completion, Downingtown and Ruberoid engineers collaborated in the development of this mill which, because of certain limiting factors, presented problems of design and arrangement not usually encountered. That these problems were successfully overcome, plus the fact that production reached over 30% *above* design capacity is an achievement in which Downingtown is proud to have played a part.

Write for further information about this unusual felt mill.

DOWNINGTOWN MANUFACTURING CO., DOWNINGTOWN, PA.

Pacific Coast Representative: John V. Roslund, Pacific Bldg., Portland 4, Oregon



Line shaft and sectional drives with Downingtown spiral bevel gear units and vari-pitch sheaves.

Reel capable of making 72" diameter rolls on the Winder.

DOWNINGTOWN

DESIGNERS AND BUILDERS OF PAPER, BOARD AND FELT MACHINES SINCE 1845

News of the Week

UNITED BOARD REORGANIZATION

NEW YORK, N.Y.—William S. Stuhr, of Weehawken, N. J., was elected president of the United Board and Carton Corp., and Morris Kay, of Wilson Paper Stock Co., New York City, was named chairman of the board at a special meeting of the corporation's board of directors on June 26.

Although the meeting resulted in the resignations of all former directors of the company which operates seven plants in New York and Ohio, Mr. Stuhr announced the new board does not contemplate any further changes in the personnel of the corporation.

The new president has been a director since 1932 and will remain in that capacity at the request of the incoming board which represents a substantial majority of the company's outstanding stock.

Elected to the executive committee of the board were Hanns Ditisheim, of Tarrytown, N. Y., chairman; Charles Passannante, president of Wilson Paper Stock Co., N. Y.; Carl K. Blum and Harry Stucker. The president and chairman of the board will also serve on the executive committee.

In addition to the above mentioned, new directors include Herman Tubliz, Chester E. Puco, William Zagarino, Thomas A. Terry, Carlo Corsuti also of Wilson Paper Stock Co., Paul De Gategno and Perry Koplik, vice-president of Castle & Overton, Inc., New York.

United Board and Carton Corp. employs more than 1,000 persons in board mills and carton plants at Lockport, Thomson, Victory Mills, Syracuse and Cohoes in New York State and Urbana and Springfield in Ohio.

The New York sales offices of the corporation are at 285 Madison Avenue.

PLAN WEYERHAEUSER MILL

Plans for the construction of a $19 million, 250-ton daily capacity, kraft pulp mill at Everett by the Weyerhaeuser Timber Co. are proceeding rapidly.

The company will use the waste of its huge Everett sawmill for the manufacture of kraft pulp. However, Howard W. Morgan, manager, of the Weyerhaeuser pulp division, said there still are several knotty problems to be worked out before construction can start and it is possible, he said, that building could be delayed indefinitely.

Mill Plans for Jacksonville

JACKSONVILLE, Fla.—Three interesting developments in the pulp and paper industry of the Jacksonville area were announced over the last week-end.

The most important was a strong intimation that the National Container Corp. of Jacksonville may build its projected new pulp mill in Jacksonville instead of near Valdosta, Ga., as originally announced some weeks ago. The National Container Corp. was recently granted a certificate of necessity covering new construction up to $25 million.

William T. Webster, vice-president of the company, stated: "We are considering a site in Jacksonville, but we are not yet in a position to say just where; we are investigating the possibility of putting the plant here instead of in Georgia."

Speculation in Jacksonville was that the new plant might be built adjacent to the company's present mill in the Talleyrand industrial district along the St. Johns River.

Mr. Webster stated that if the company chooses Jacksonville, the initial expenditure will be at least $10 million. He said also that equipment would be installed to prevent noxious fumes from polluting the air and noxious effluent from polluting the St. Johns River. The new plant of the St. Regis Paper Co., which is now being built at Eastport, on the northern outskirts of Jacksonville, is to be equipped with anti-pollution equipment to be installed under the supervision of the Florida State Board of Health.

Establishment of the new plant of National Container in Jacksonville would enable the company to set up a well-integrated operation, including pulp manufacture, conversion into kraft paper and fabrication into containers. The construction plans would include dock facilities on the St. Johns River for ocean shipments.

Another container plant for Jacksonville was announced by the Kieckhefer Container Co. of Camden, N. J., which awarded a contract for a reinforced concrete factory building with 25,000 sq. ft. of floor space, to cost $200,000, for the manufacture of kraft board containers. L. G. Lea, vice-president of the Camden, N. J., company said that there are still some details of the Jacksonville operation that have not been decided upon. The company's pulp mill is situated at Plymouth, N. C., and it operates other container plants at Camden, N. J.; Tampa, Fla.; Whittier, Calif.; Dallas, Tex.; and Bensenville, Ill.

At the same time it was announced that Royonnier, Inc., has purchased a 41-acre tract adjacent to its Fernandina, Fla., rayon pulp plant for expansion. No details as to what Rayonnier, Inc., contemplates have been announced here, but a certificate of necessity recently issued to the company by the National Production Authority covered new construction of $6,785,000, of which $2,985, 535 was earmarked for the Fernandina plant.

LONGVIEW PLANS CHIP PLANT

The Longview Fibre Co., of Longview, Wash., has purchased a five-acre industrial site near Eugene, Ore. It will be used for a chipping plant.

Company officials said the firm will begin construction of the plant as soon as equipment can be obtained. R. S. Wertheimer, resident manager at Longview, said the plant probably will be completed this fall. A 1000-foot spur off the Oregon Electric Railroad main line will enable loading about nine carloads of chips per day from the plant.

Chips will be shipped to Longview for processing into paper and board production.

MORE CERTIFICATES OF NECESSITY

The following certificates of necessity were issued between June 8 and 15:

Name of Company Location of Facilities	Amount Applied For	Amount Eligible	Percentage Certified
Chesapeake Corp. of Va., West Point, Va.	$703,779	$703,779	65
Container Corp. of America (Calif. Container Corp. Div.) Los Angeles, Calif.	904,000	904,000	50
National Gypsum Co., Buffalo, N. Y.	3,897,625	3,497,625	50
Champion Paper & Fibre Co., Hamilton, Ohio	1,697,643	1,697,643	65
Sonoco Products Co., Hartsville, S. C.	520,000	520,000	50
Eddy Paper Corp., Chicago, Ill.	710,700	705,700	50

MAY NEWSPRINT REPORT

NEWSPRINT ASSOCIATION OF CANADA, MONTREAL

I. PRODUCTION AND SHIPMENTS in short tons: 2,000 pounds		MAY 1951	MAY 1950	MAY Percent Change	YEAR TO YEAR 1951	YEAR TO YEAR 1950	YEAR TO YEAR Percent Change
1. Canadian Production: including Newfoundland	mo. and year to date	485,723	459,937	+ 5.6	2,284,353	2,150,604	+ 6.2
	per working day ..	17,990	17,098	+ 5.2	17,736	16,828	+ 5.4
	percent of capacity.	103.4	100.4		101.9	98.8	
2. Canadian Shipments: including Newfoundland	to United States ..	422,372	432,283	— 2.3	1,969,943	1,916,194	+ 2.8
	to Can. Consumers .	32,402	29,662	+ 9.2	148,725	144,449	+ 3.0
	to Other Markets .	31,566	17,615	+79.2	108,639	51,384	+111.4
	total: all markets .	486,340	479,560	+ 1.4	2,227,307	2,112,027	+ 5.5
3. U. S. Production:..	mo. and year to date	96,420	89,719	+ 7.5	456,395	396,228	+ 15.2
4. U. S. Shipments:..	to U. S. Consumers .	92,754	85,381	+ 8.6	450,944	391,458	+ 15.2
	to Other Markets .	668	876	—23.8	3,735	6,002	— 37.8
	total: all markets .	93,422	86,257	+ 8.3	454,679	397,460	+ 14.4
5. U. S. Imports from Europe:	*estimate; see Table 8	*13,200	14,639	— 9.8	77,017	70,843	+ 8.7

II. CONSUMPTION AND STOCKS in short tons: 2,000 pounds		MAY 1951	MAY 1950	MAY Percent Change	YEAR TO DATE 1951	YEAR TO DATE 1950	YEAR TO DATE Change Percent
6. U. S. Consumption:	estimated total	527,102	525,388	+ .3	2,471,194	2,458,690	+ .5
7. North American Stocks:	U. S. Consumers ..	619,185	528,612	+17.1	619,185	528,612	+ 17.1
	Canadian Mills ...	146,188	159,767	— 8.5	146,188	159,767	— 8.5
	U. S. Mills	9,957	9,582	+ 3.9	9,957	9,582	+ 3.9
	estimated total	775,330	697,961	+11.1	775,330	697,961	+ 11.1
8. A.N.P.A. Report:.. 325 Newspapers	Consumption	403,233	401,922	+ .3	1,890,463	1,880,898	+ .5
	Stocks (tons)	419,123	382,871	+ 9.5	419,123	328,871	+ 9.5
	Stocks (days)	32	30		32	30	

COLUMBIA'S LOG HAUL

One of the features of the new plant of the Columbia Cellulose Co., Prince Rupert, B. C., is an extraordinary long log haul which is required to span rail trackage between the mill and the water's edge. This problem was solved through the cooperation of engineers of the company and ESCO Limited of Vancouver, and by using equipment developed by the latter company, a record length, super-span log haul was built, using 1,100 feet of ESCO Manganese steel chain. This steel chain has a yield strength of 30,000 to 55,000 pounds per square inch, and an ultimate strength of 100,000 to 130,000 pounds per square inch.

PULP MILL FOR ARROW LAKES

SAULT STE. MARIE, Ont.—According to Lands Minister Kenney, a pulp mill may be established soon in the Arrow Lakes district in southern British Columbia, where the Canadian government is test-running turbines of the 33,000 hp. Whatshan hydro project.

The provincial minister reported negotiations are in progress with a pulp company.

He did not name the company, but said negotiations had been going on for some time, presumably for a forest management license that would insure timber supply for the mill.

If the government's terms were acceptable, Mr. Kenney reported, another firm has asked for consideration. He did not name that firm either.

Main attraction is a large stand of over-mature hemlock. In addition, the freight rates from Nakusp district, which is 30 air miles north of the proposed project area, to some eastern markets are more advantageous than from mills on the tidewater.

The Minister gave as an example a rate from Nakusp to Chicago, 19 cents a hundred less than from Vancouver, B. C.

Whatshan hydro project on the Arrow Lakes, to be placed in service in June by the B. C. Power Commission, is a potential source of electrical power.

ADVERTISING AWARD TO RIEGEL

The Riegel Paper Corp. has received an award for outstanding industrial advertising from the National Industrial Advertisers Assn. at their annual meeting at the Waldorf-Astoria.

The award was made to Floyd Triggs, advertising manager, for their advertising campaign on technical industrial papers produced by Riegel at their New Jersey mills.

NIAA awards are acknowledgment of excellence in planning, execution and achievement of definitely stated advertising objectives made annually by that association. More than three hundred entries were screened by a competent panel of twenty-four judges comprised of copy and layout authorities, advertising and sales managers.

PLAN DORMITORY UNIT

Pacific Mills Ltd. are planning the erection of a large dormitory building for single men at Ocean Falls, B. C. The building will have 105 rooms, each of which will be provided with hot and cold water facilities.

Specifications call for steam heat, asphalt tile floors, brick exterior finish and a passenger elevator.

NEWSPRINT FROM PEAT?

Experiments at present being carried out in the laboratories of Bowaters, newsprint and pulp manufacturers, at Gravesend, Kent, are examining the possibility of making newsprint from peat. Samples of peat have been collected from all over Ireland, and experiments are being carried on under the supervision of Dr. Nissen, one of the world's greatest authorities on paper manufacture.

TAKE OVER JESSUP & MOORE

Conowingo Paper Mills Corp., Elkton, Md., is operating the former Jessup and Moore Kenmore mill at Providence, Md., for the production of .009 corrugating medium and .009 chipboard. Capacity of the mill is 55 tons per day. The mill is equipped with two 96" Fourdrinier machines with a trim of 91".

Officers of the mill are Nathan H. Grossman, president; Irving J. Grossman, vice-president and secretary; and Peter M. Barlow, treasurer.

BROWN CONSTRUCTS LAGOON

Brown Co., Berlin, N.H. has taken the first step toward putting the Burgess sulphite pulp mill on a long-term sound footing, in order that the mill may not have to curtail production during summer months because of the odor of waste liquor going into the river. They are in the process of constructing a lagoon at Cascade, so that waste liquor from the Burgess mill can be piped into it, to reduce the waste liquor entering the river during the Summer, thereby keeping production of the mill at its present level, or increasing it. It has been proven that the odor does not develop until the liquor has been diluted by the river. Management has also agreed to beautify the surroundings near the lagoon and make the project a benefit to people in the area. They plan to enclose the entire lagoon with an industrial fence, to landscape the surrounding area with grass a shrubbery, and to include a modern recreation area with a baseball diamond, combination basketball and volley ball court, playground for the young children, rest rooms and a field house.

NEW HAMMERMILL OFFICE

The Hammermill Paper Co., Erie, Pa., has opened an office in Room 1516 of the Mercantile Securities Building, Dallas, Texas.

R. F. McMahon, district sales manager for the Southern Sales Territory, is in charge of the office, which brings the number of Hammermill field offices to five; others being located in New York City, Chicago, San Francisco and Hoquiam, Wash. Hammermill's main sales office continues to be located at the mill in Erie, Pa.

HOWARD PAPER CO. MOVES

J. R. Howard Paper Co. have moved their office and warehouse to larger and more modern quarters at 2405-11 Federal Street, Philadelphia 46, Pa.

ST. REGIS SAFETY RECORD

A three-year study of its 36 operations shows that the St. Regis Paper Co. in 1950 lowered its accident frequency rate by 15.7 percent and the number of disabling injuries by 11 percent, according to E. B. Lambton, company safety engineer. As a result of this, four St. Regis plans have been designated award winners in the Pulp and Paper Industry annual safety contest of the National Safety Council. In the pulp and paper division, the Kalamazoo, Mich. paper mill in group B and the East Pepperell, Mass., paper mill in group C received certificates of achievement. Safety statistics indicate that the division within St. Regis making the best improvement over the 1948 period was the Engineering and Machine division, with 60.4 percent reduction, Groundwood Paper Div. 31.7 percent; Kraft Paper Div. 28.9 percent and Multiwall Bag Div. by 7.7 percent.

PEOPLE

MORRIS WARZINIK has been elected vice-president in charge of product development of Hoffmaster Paper Co., Inc. Mr. Warzinik comes to Hoffmaster with an extensive background of product development, market research and sales promotional work, through previous connections with Marathon and the John Strange Paper Co.

PAUL E. ALLAIN has been named to the newly created position of controller at the Marvellum Co.

DR. T. EWALD MAKI of New Orleans, La., has been named head of the research program and curriculum in forest management in the School of Forestry at North Carolina State College.

Dr. Maki, now the officer in charge of the Gulfport, Miss., Branch of the Southern Forest Experiment Station at New Orleans, will succeed Dr. C. M. Kaufman, who resigned the position at North Carolina State College to become director of the School of Forestry at the University of Florida in Gainesville.

IRVING FOOTLIK has been appointed materials handling consultant of Stone Container Corp.

In his new capacity, Mr. Footlik will supervise materials handling for Stone Container's box plants and paper mills and will counsel the company's customers on efficient methods of handling corrugated boxes, Stone said.

ALBERT C. HENTSCHEL was elected a vice-president of Johnson, Carvell & Murphy, manufacturers' representatives.

Mr. Hentschel, who is also a member of the board of directors, first became associated with the firm in 1918 and with the Paper Products Division in 1924. His official title is vice-president in charge of paper sales.

U. S. IMPORTS OF WOOD PULP

Preliminary Figures, May, 1951

Item	Country of Origin	Short Tons
Mechanical		
Unbichd.	Canada	26,238
	Norway	1,305
	Finland	1,770
		29,313
Screenings	Canada	426
Bichd.	Canada	1,173
Chemical		
Sulfite, Unbichd.	Canada	38,970
	Sweden	2,395
	Germany	261
	Finland	10,561
		52,187
Screenings	Canada	749
Sulfite, Bichd.		
Rayon & Special Chem. Grades	Canada	16,379
	Sweden	392
		16,771
Other	Canada	23,364
	Sweden	3,198
	Norway	1,857
	Finland	7,529
		35,948
Sulfate, Unbichd.	Canada	17,279
	Sweden	2,695
	Norway	1,739
	Finland	16,335
		38,048
Sulfate, Bichd.	Canada	43,583
	Sweden	7,142
	Norway	224
		50,949
Soda, Unbichd. & Bichd.	Canada	2,995
Totals, May	Canada	171,156
	Norway	5,125
	Finland	36,195
	Sweden	13,822
	Germany	261
		226,559

*To be investigated by Census.

JAMES T. SHEEHY, vice-president of Rayonier, Inc., since early in 1950, has been elected vice-president in charge of all operations of the company. WILLIAM E. BREITENBACH and RUSSELL F. ERICKSON, vice-presidents, have been placed in charge of mill operations, Mr. Breitenbach to direct operations in the Northwest and Mr. Erickson in the Southeast.

DR. EDWARD G. LOCKE, chief of the Forest Utilization Service in the Pacific Northwest Forest and Range Experiment Station, is being transferred from Portland, Ore., to the U. S. Forest Products Laboratory at Madison, Wis. Mr. Locke will be chief of the division of derived products, which conducts research in wood chemistry.

RUSSELL D. SCRIBNER has been appointed production manager of the folding carton division of Robert Gair Co., Inc., New York.

Mr. Scribner spent fifteen years with the DuPont Co. at Buffalo, N. Y., and Old Hickory, Tenn., in the cellophane division where he did quality control, industrial engineering and like production work. He was subsequently in charge of four plants of Shellmar Products Corp., Mt. Vernon, Ohio, largest converters of cellophane in the world, who print, laminate and make bags of cellophane.

HARRY E. BLYTHE, tool and dye manufacturer of Alliance, Ohio, has been named consultant on small business to the Under Secretary of the Army, it was announced this week. He will advise on procurement practices, especially with reference to smaller concerns.

RENE D. WASSERMAN, director of research and president of Eutectic Welding Alloys Corp., of Flushing, N. Y., has been appointed to the Research Committee of the National Assn. of Manufacturers.

THOMAS C. FOGARTY, executive vice-president of the metal division of Continental Can Co., was elected to the company's board of directors effective July 1 to fill the vacancy created by the resignation of Sidney J. Steele.

Mr. Fogarty has been with the company since 1929 and before his appointment as executive vice-president of the metal division was vice-president in charge of sales. He had previously been eastern division sales manager and a division sales manager.

GOVERNMENT GOSPEL

Maloney Succeeds Ticoulat

WASHINGTON, D. C.—John W. Maloney, has been appointed Director of the Pulp, Paper and Paperboard Division of NPA. He succeeds G. J. Ticoulat, who recently became Deputy Director of the Chemicals, Rubber and Forest Products Bureau of NPA. Mr. Maloney has been serving as Deputy Director of the division he now heads. He is on leave from his post as vice-president of Hoberg Paper Mills, Green Bay, Wis.

Mr. Maloney is being succeeded as Deputy Director by John E. Franzen, on leave from his office as sales manager of the Hammermill Paper Co., Erie, Pa., having served previously as manager of the New York sales office of Hammermill.

Call for Fuel Stock-Piling

WASHINGTON, D. C. — A call for a voluntary program of fuel stock-piling by all types of consumers, was sent out by ODM Director Charles E. Wilson, as a defense mobilization aid. Such a program over the next 90 days, he said, "would make a substantial contribution to the defense mobilization effort."

He pointed out that the maximum defense production effort will be centered in 1952, increasing rapidly the burden on transportation in the coming Fall and Winter. A voluntary stock-piling program now, he said, would spread the load of heavy fuel movement through the interim months.

Industry Advisory Committee Meetings

WASHINGTON, D. C. — Industry Advisory Committee activities last week included: Grocery and Variety Bag Manufacturers—meeting with OPS to discuss a specially tailored price regulation, superseding GCPR control over their products; effective July 2, they will be required to price under the general manufacturers' CPR 22. However, they conceded a tailored price regulation would be difficult to formulate until ceiling prices on kraft paper are also established.

Paperboard bulk ice cream cans — members at their second meeting with OPS said their industry would be entitled to move upward from GCPR prices on a majority of the industry's volume; they asked to be exempt from CPR 22, which was scheduled to take effect for them July 2.

Eastern pole and piling — reported that at their ceilings under GCPR they are unable to compete with sawmills for stumpage for larger poles and piling, but were unable to suggest a practical method of putting ceilings on stumpage.

V-belt subcommittee—discussed with OPS proposed price levels for their industry under a forthcoming tailored regulation.

Naval Stores Available for Export

WASHINGTON, D. C.—The maximum quantity of rosin available for export from other exporting countries than the U. S. is estimated at 529,000 drums and 115,000 barrels of turpentine for this year.

This country's supply of rosin, including gum, wood, tall oil rosin and tall oil, for 1951 totaled 3,401,554 drums, including carry-in stocks, U. S. production and imports, compared with 3,138,000 drums for 1951-52; supplies of gum and wood turpentine for 1950-51 crop year totaled 931,281 barrels compared with an estimated 849,000 barrels for the 1951-52 crop year.

The Office of International Trade reported the supply-demand situation will be kept under constant review, where exports are involved. The present policy of licensing naval stores exports under "open-end" quotas will be continued until further notice, it was stated.

Exports licensed for three months, April 1–June 22, 1951, included:

Gum rosin, 93,924 drums; wood rosin, 54,117 drums; gum turpentine, 27,408 barrels; wood turpentine, 4,526 barrels; terpene hydrocarbons, 705,677 gallons; pine oil, 308,274 gallons; wood tar and pitch, 4,051,000 pounds; crude tall oil, 9,080,000 pounds; refined tall oil, 4,966,000 pounds.

Other exporting countries include France, Portugal, Spain, Mexico, Greece and Sweden.

A late report from American officials in France is that the French naval stores trade expects domestic demand to continue firm through the new crop year which began in May, with consuming industries trying to accumulate stocks.

A good demand for French rosin is reported, but export prospects are not yet known, said these sources. Also, the French government has given no indication of its position if the international situation should improve. Trade opinion is that exports of rosin will not be resumed until home stocks have been replenished, although new trade developments or agreements might modify this prospect.

Greek exports last year were of the order of 44,970 American barrels of rosin and 469,710 U. S. gallons of turpentine, with Germany as the principal rosin purchaser followed by the United Kingdom and Italy; Germany also was the leading buyer of turpentine. Greek exports in 1949 and part of 1950 at least were on a barter basis.

Duncan Named NPA Consultant

At the request of the NPA, John Duncan, Jr., Director of Trade Relations of Owens-Illinois Glass Co., has accepted an appointment as a temporary consultant for that agency's Production Control Staff. Mr. Duncan will act as liaison officer and will begin his new duties immediately.

As liaison officer he will have the responsibility for directing industry and business representatives to the proper NPA divisions and helping them find solutions to their problems. He will spend part of his time in Washington and part in Toledo, Ohio, Owens-Illinois headquarters.

Issue Order M-72

The NPA issued Order M-72 which will limit quarterly usage starting July 1 to 95 percent of the 1950 quarterly rate, limit inventories to a 40-day supply and require integrated mills to sell 3 percent of their quarterly output to non-integrated or partially integrated mills.

Retain Consumer-Credit Restrictions

OTTAWA — Canadian pulp and paper industry has now learned that the Canadian Government does not intend to immediately relax the consumer-credit restrictions despite protests which are being made by various industries and trades against these regulations on the ground that business is being affected adversely by the restrictions. Finance Minister Douglas Abbott made this announcement in Parliament.

Canada Increases Investment

OTTAWA—Canadian Government reports projected capital, repair and maintenance expenditures by private and public investment throughout this country in the paper products manufacturing industry are estimated to increase to $171.5 millions during 1951, including $32.3 millions for construction and $139.2 millions for machinery and equipment, as compared with $128.6 millions during 1950, including $29.5 millions for construction and $99.1 millions for machinery and equipment.

Report shows capital expenditures in the paper products industry will rise to $109 millions during 1951, including $26.7 millions for construction and $82.3 millions for machinery and equipment, as compared with $72.3 millions during 1950, including $21.1 millions for construction and $51.2 millions for machinery and equipment. Repair and maintenance expenditures during 1951 will total $62.5 millions, including $5.6 millions for construction and $56.9 millions for machinery and equipment, as compared with $56.3 millions during 1950, including $8.4 millions for construction and $47.9 millions for machinery and equipment.

Emergency Newsprint Allocations

WASHINGTON, D. C. — The International Raw Materials Conference recommended emergency allocations of 9,550 tons of newsprint to six areas with a "critical need."

An announcement said American and Canadian publishers have agreed to give up some of their own stocks to

The Vickery Hi-Angle Doctor
— for rolls at the wet end and for dryers

VICKERY DOCTORS

are engineered, constructed and applied to keep your hard working rolls continuously clean and smooth — in shape to permit maximum machine speed with a minimum of rejects and breaks. They help you to produce better, more uniform paper and more of it per day.

BIRD MACHINE COMPANY
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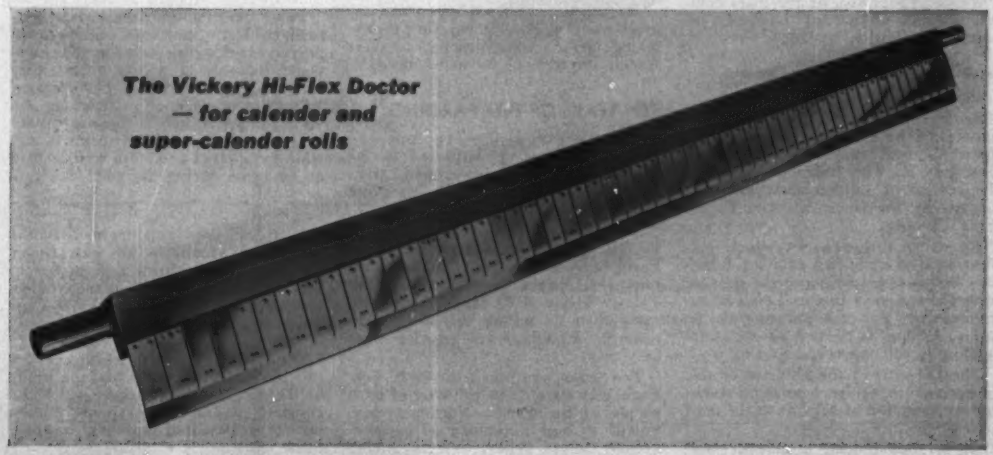

The Vickery Hi-Flex Doctor
— for calender and super-calender rolls

keep newspaper presses running in these areas.

Countries allocated newsprint were: The Philippines, 2,500 tons; India, 2,400 tons; Yugoslavia, 2,000 tons; Greece, 1,500 tons; Malaya and Singapore, 650 tons; and Pakistan, 500 tons.

"Unless newsprint is made available immediately their press will be most seriously affected," the announcement said.

It was learned the Conference's 13-nation pulp and paper committee considered, but apparently rejected, emergency allocations sought by Britain, Western Germany and Italy.

Nearly 70 countries now have answered detailed questionnaires submitted by the Conference on their need for newsprint. Officials said there are tentative plans to announce further allocations of a more permanent nature for all countries some time in July.

OTTAWA—The recommendation that Canada supply 7,050 tons of her newsprint as emergency allocations for six countries is expected to get quick approval by the cabinet, informed quarters said.

The pulp and paper committee of the International Materials Conference in Washington suggested allocations amounting to 9,550 tons, of which the U. S. would supply 2,500 and Canada the remainder. This is in addition to a previous allocation of 3,000 tons for France, of which the U. S. agreed to supply 500 tons and Canada 2,500.

PARIS, France — The secretariat of the United Nations Educational, Scientific and Cultural Organization (Unesco) said that its task of furthering world education will become impossible unless more paper is made available for newspapers, periodicals and books.

"If only 5 percent more people learn to read throughout the world in the coming year, there will not be enough paper to give them books, newspapers, periodicals or even copy-books," said Philippe Desjardins, of the mass communications section of Unesco's information division.

Issue Sulphur Distribution Order

OTTAWA — Rt. Hon. C. D. Howe, Minister of Defence Production, has announced here that an order on the distribution of sulphur became effective July 2. The order provides for the review of sulphur distribution in Canada by the Chemicals and Explosives Division.

By using this new procedure, sulphur will be channeled into the necessary end uses to carry out the defense program and meet essential civilian requirements. For the purpose of the order, sulphur is defined as elemental sulphur in all commercial forms.

The Director of the Division is also authorized to require reports on stocks and consumption of sulphur as the need arises.

All persons desiring to purchase sulphur from other than Canadian distributors' warehouse stocks are required to forward their purchase orders to the Director of the Chemicals and Explosives Division. Distribution of sulphur in Canada will be required to obtain the written approval of the Director on Sales.

Gum Rosin Ceilings Set

WASHINGTON, D. C. — Dollars and cents ceiling prices for gum rosin and gum turpentine were named on June 27 by OPS in CPR 52. The order, which became effective immediately, removed these items from the general freeze order of January 25, and set ceilings on gum rosin in drums, Savannah yards, per 100 pounds. Papermaking grades of gum rosin are priced at $9.49 for K, $9.48 for I, H, $9.47 for G, $9.08 for B.

Paper Authorized for Indo-China

WASHINGTON, D. C. — Latest ECA procurement authorizations last week included paper and paper products totaling $200,000 for Indo-China, to be obtained in this country.

Another authorization covered $360,000 worth of wool rags from this country for Yugoslavia.

Freeze Prices Covered by CPR 22

WASHINGTON, D. C. — Acting on a provision in extension of price control legislation for 31 days which bans price roll-backs, the Office of Price Stabilization took emergency measures with respect to the General Manufacturers' Pricing Order, CPR 22, which was to become effective July 2, and which entailed roll-backs in some products.

The OPS, immediately upon White House signing of the extension, froze the June 30 prices of manufacturers covered by CPR 22, and extended indefinitely, filing provisions of these regulations. The freeze action is indefinite.

The agency expressed hope that Congress would provide a way for "undertaking manufacturer pricing" to meet "public interest and business" needs.

TEN YEARS OF TREE FARMING

WASHINGTON, D. C.—The American Tree Farm System, dedicated to the production of continuing crops of trees off the same land, was 10 years old June 23.

Since the Weyerhaeuser Timber Co. in 1941 launched the nation's first Tree Farm in Washington's Douglas fir region, the idea has spread to 28 other states. Today 3100 landowners with more than 23 million acres of well-managed forestland are growing trees as a crop.

Ten years ago when the first Tree Farm was started, the thinking of most people of the Pacific Northwest was geared to half a century of cut-and-get-out forest policy. Virgin timber was dwindling in some areas, log shortages were developing here and there. Tax incomes were dropping. Forest fire losses, already high, threatened to become worse.

Today, it's easy enough to count the economic dividends that have come to the area in a decade of Tree Farming. Population is growing, payrolls are at an all time high and the forest industries are employing more people and producing more products than ever before.

Fire losses have been reduced year after year. Improved logging and better utilization of manufacturing leftovers have gone hand-in-hand with Tree Farming developments.

The Tree Farm System is coordinated nationally by American Forest Products Industries of Washington, D. C. States with Tree Farm programs include: Alabama, Arkansas, California, Florida, Georgia, Idaho, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, Washington, West Virginia and Wisconsin.

MISSOURI ENVELOPE MOVES

The Missouri Envelope Co., which has been at 4601 Delmar Avenue for a good many years, will move in about three weeks to a new building at 5211 Northrup Avenue which will provide considerably more floor space than the firm has had in the past.

AUSTRALIAN NOTES

During the month of March, imports of newsprint in rolls totaled 6,355 tons compared with the 7,653 tons of the previous month, while imports in sheets totaled 134 tons as compared with 227 tons.

* * *

Paper position in Australia is particularly bad. Shortages of newsprint have created a depression in the newspaper industry at a time when other businesses are flourishing. In the magazine field a number of productions are closing down as paper supplies cannot be obtained. Shortages of kraft and white wrappings are more serious than at any time during the war.

* * *

It is officially announced that the threatened shutdown of the Boyer (Tasmania) newsprint mill owing to electricity shortage has been avoided, but there is still insufficient power for the new paper-making machine recently installed. Managing Director S. L. Kessell says that lack of power for this new machine means that the whole of the new developments on which the company has spent nearly £4 million during the past four years will continue to be unused.

save $250.00 a carload!

—COMBINING CORRUGATED BOARD

DURA-BOND, a new chemically treated starch, slashes combining costs! Actual use shows that it may be substituted for ordinary pearl cornstarch—in carrier and bottom mix—at an 11-12 ratio. On the average, 8% less DURA-BOND may be used *without lowering the safety factor*. And when you're talking carloads, that's a saving of $250-$300 at current prices!

DURA-BOND is not merely a redried or low moisture starch. It's new. Patented. There's nothing else like it on the market!

DURA-BOND is specially formulated to gelatinize at a more rapid rate—and to a greater degree—than pearl cornstarch. Because of this, DURA-BOND permits faster production. At the same time, you get better binding properties . . . a dryer board off the machine. DURA-BOND maintains a more stable viscosity in circulation. Extra coverage. To produce better board at lower cost, mail the coupon—today!

National
STARCH PRODUCTS

I'M INTERESTED in the starch that can save me money . . . without lowering my safety margin:

NATIONAL STARCH PRODUCTS INC.
270 Madison Avenue, New York 16, N. Y.

☐ *Please send further technical information on DURA-BOND.*

☐ *Please arrange for a trial demonstration in my plant.*

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

don't let mold munch on man hours!

Aspergillus magnified 78X.

Mold and bacteria can cause significant loss of man hours and material in the pulp and paper industry.

Dowicide products work effectively and economically to protect starches, casein, glue and other decomposable adhesives, sizes or coating materials from attack by mold and bacteria. They also prevent mildew on lap stock in storage and the deterioration of paper board cartons and other paper products which may be stored or used under humid conditions.

Water and wax-soluble Dowicide products will give full protection to various types of soap wrappers.

If you are not already using Dowicide industrial germicides and fungicides for all-around microbial protection in *your* mill, contact your nearest sales office today, or write to Midland. Dow maintains complete laboratory facilities to help solve your problems.

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MAINTENANCE—V OF SERIES

How Paper Mills Conserve Steel Strapping

A. N. Perry[1]

Not only government regulations, but the rising cost of doing business, have caused the paper mills to look twice at non-productive sections of their plants. Packaging and shipping practices have been coming in for close scrutiny. Shortages of vitally needed steel strapping for skids and carloading have flooded us with requests for suggested ways of conserving strapping.

Investigations by sales representatives and field engineers reveal that wasteful practices, and lack of attention to details of good packaging and carloading procedures have been creeping in. The following are some ideas that may help individual mills review some of their strapping methods. We hasten to point out that what suggestions are recommended here are not emergency measures—but sound practices that should be carried out regardless of the availability of strapping.

Packing and Carloading Methods Check List

1. Check to see if it is possible to strap skids and apply roll end binding from the coil. Even under ideal conditions, cutting the strapping to length before making the application is wasteful. There is always a tendency to cut the strapping too long. In addition, there is the wasted strapping end that must be thrown away.

2. In application of roll end binding, place the strapping as close to the end of the roll as possible. Failure to place this strap on close to the end, and straight, with as much tension as possible, fails to perform the function of protecting the edge of the roll. The strapping is wasted, and the roll preconditioned to receive damage.

3. Where it is necessary to precut steel strapping for skids of paper, carloading of skids, bundles or rolls, chart up average uses so that excessive strapping loss will not occur. A handy chart can be made up in advance, as a result of studies of strapping usage. Chart I illustrates a suggested chart of strapping lengths to be used on skids. Chart II is an example of a guide for the cutting of strapping to length in the loading of certain paper rolls. When a particular unit or carload is to be strapped, the correct length is determined and cut from the reel. To aid in this cut-to-length operation, it is recommended that the reel be placed in a fixed position, and distances marked off on the floor so

[1] Manager, Field Research and Engineering, Signode Steel Strapping Co.

Most automatic seal feed strapping machines will work on skids and bundles directly from the floor reel. Note that the excess strapping is fed back to the reel as tension is taken up with the stretching arm. With the strapping being cut off at the seal, waste is cut to a minimum.

Figure 1—An expendable pallet load of K.D. Fibre Board Containers being unit bundled using the new Signode A-34 automatic seal feed strapping machine.

Figure 2—Skid strapping from the floor reel. The hook assembly on the nose of the Automatic seal feed strapping machine makes the application of strapping to high skids a simple operation.

that the proper lengths of steel strapping can be measured and cut efficiently. Modern strapping dispensers, and cutters and accessories are a "must" for an efficient operation.

Other Suggestions

Receivers of many incoming shipments are now finding it practical to recover strapping not overstressed on the initial use. This is not normally an economical practice.

There is sometimes a tendency to add strapping and bracing because of transit damage complaints. Often the correct solution is to check the method of application and the individual container, to eliminate basic faults. Each shipper would do well to check his operation to see that new personnel have not changed original practices by adding more strapping or bracing materials to the load. In addition, a change in container specifications, suggests a review of strapping practices. Sales and Field Engineers are available to assist shippers in checking these points.

SUGGESTED CUT TO LENGTH CHART

Length of Strapping Required to Encircle Unit of Rolls Loaded on Bilge—2 Rolls High.

No. of Rolls	Diameter of Rolls	Length of Strapping
2	46"	22'
2	50"	23'
2	60"	28'
3	46"	26'
3	50"	28'
3	60"	33'
5	46"	33'
5	50"	36'
5	60"	43'
7	46"	41'
7	50"	45'
7	60"	53'
9	46"	49'
9	50"	53'

Length of Strapping = Circumference of Roll + (No. of Rolls × Diameter or Rolls) + 2' Overlap. (The above figures apply only to rolls loaded two rolls high).

Safety Works

James R. Shea, Sr.[1]

Confronted at the end of its 1944 fiscal year with the worst annual safety record in its history—89 lost-time accidents and a frequency rate of 63.39—operating management of the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Co. began a complete reorganization of its safety program. Six years later lost-time accidents in one year had been reduced to three, while the frequency rate was down to 1.88. In the interim Tyrone Mill had won all company trophies and awards for safety progress from 1946 through 1949. At the time this article is being written—(mid-May, 1951)—Tyrone Mill has operated for a six-months period without a lost-time accident, leading all of the Company's six mills, and also its classification in the contest year of the National Safety Council with a zero.

Seemingly there was no explanation for 1944's bad accident record at Tyrone Mill. Management had laid emphasis on maintenance of safe conditions within the plant. Safety equipment was available for employees. Machinery was equipped with mechanical guards of proved practicability. Adequate and proper lighting was provided. It also was Company policy to watch for hazardous procedures and methods and eliminate them as soon as discovered.

An analysis of the situation disclosed, however, that the key to the problem lay in the fact that there had been a lack of proper education in safety. Little had been done to train employees how to work safetly.

To correct this a safety director was appointed on a part-time basis. At the same time a Mill Safety Committee was appointed. The plant was divided into 32 Safety Groups and an intensive

James R. Shea, Sr.

educational program was begun. This was directed first to the members of the Safety Committee. Stress was placed on "Accident Control" and "Safety Leadership." Supervisors then were brought into the program. Finally it was carried to individual employees.

Regulations covering the use of safety and protective equipment and instruments were drawn up and the revitalized program was inaugurated in May, 1945. During the first seven months of the Company's fiscal year—(which runs November 1, through October 31)—a total of 60 lost-time accidents was recorded. The value of the new program was demonstrated when, during the remaining five months, the number of disabling accidents was held to 16.

Under direction of the new Safety Committee—its members serve on a

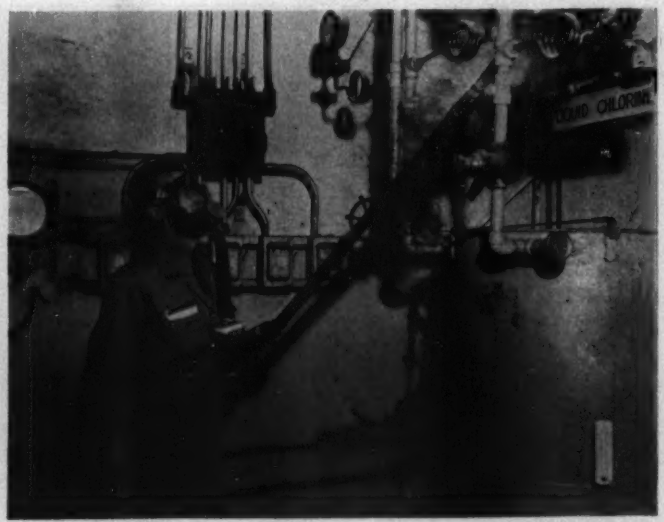


Figure 1—When working around liquid chlorine lines, especially when hunting leaks with the aid of a "dip stick" as this employee is doing, workmen at the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Company, are protected by industrial gas masks equipped with U. S. Bureau of Mines-approved canisters for chlorine fumes.

[1]Manager, Tyrone (Pa.) Mill, West Va. Pulp & Paper Co.

Figure 2—Operators in the lime kilns at the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Company wear "Comfo" respirators for protection against lime and other dusts.

permanent, rather than on a rotating, basis—every employee at Tyrone Mill was trained in the use of protective equipment. This was provided for him personally, or for use on jobs in his department. Much of this equipment had been available before but, as had been disclosed by the investigation, many employees did not know how to use it properly.

At the beginning of this year safety

Figure 3—Light concentrations of chlorine gas often are found in many operations at a paper mill. These fumes may cause breathing discomfort. In this picture, a bleacherman at the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Company is shown wearing a Gasfoe cartridge respirator for protection against light concentrations of chlorine.

Figure 4—The Safety Committee at the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Company is aware of the danger to workers of even very small amounts of carbon monoxide. Therefore, safety rules require that the atmosphere of all areas considered potential carbon monoxide danger zones, be tested regularly. For this purpose, use is made—as shown in the above photograph—of a Colorimetric Carbon Monoxide tester.

equipment provided by the Company included instruments for the detection of toxic and explosive gases; plastic-and-fibre helmets for head protection; various types of goggles, both standard and prescription; rubber gloves for handling acids; sand blast helmets; metal foot guards; safety belts; dust and fume respirators; protective creams; burn ointments; industrial gas masks; various types of air supply masks; air moving devices for purging enclosed areas of combustible or toxic gases, dusts, smokes and vapors; welding helmets, jackets, leggings, aprons and gloves; First Aid kits; babbitting masks and acid masks.

Shortly after mid-1949 it was announced that Tyrone Mill had won the award of the National Safety Council for Class B mills in the Pulp and Paper Industry for the contest year ended June 30, 1949, with a frequency rate of .59. Every employee at the Mill was elated and each felt personal pride in the achievement. In a message to employees at the time I wrote:

> "The safety records set at Tyrone have been possible only through hard work and enthusiastic effort by every employee. Our Safety Committee functions to bring home to our men the message that 'Safety and Production go hand in hand, since every Safe Worker is a Good Worker.' Safety is better than Compensation because everybody loses when a worker is injured."

So well has Safety been inculcated at Tyrone Mill that every man here is, in effect, a Safety Committee in himself. Let one man neglect to use his goggles, or a respirator, or other protective devices when he should, or let him commit some other safety offense, and the men working with him soon remind him that he is endangering (a) himself, (b) the safety record of his group, and (c) the safety record of the Mill.

The contest year of 1948-49 when the National Safety Council Award was won by Tyrone Mill with a frequency rate of .59, was one of full and uninterrupted production in the pulp, paper

Figure 5—Before "hot work" such as welding can be started in certain areas, supervisors at the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Company, test the atmospheres for explosive gas concentrations with an Explosimeter, a portable instrument developed for this purpose by Mine Safety Appliances Company, Pittsburgh, Pa. Among the places constantly checked by this "mechanical nose" are the black ash leachers and the digesters in the Pulp Mill.

and chemical operations carried on here. An average of 820 employees had worked for 1,694,184 man-hours with only one disabling injury. This injury did not occur on an operating job. It was received during the performance of an infrequent, and minor, maintenance job, in a remote portion of the mill property not frequented by operating personnel.

I might, at this point, call attention to the fact that contest safety records at this time were figured for two different periods at the Mill. Up to mid-1949 National Safety Council's contest year included the first six months of the current year, and the last six months of the preceding year, i. e., July 1 through June 30. Our Company keeps its records by its fiscal year, the period from November 1 through October 31. This explanation will, I am sure, serve to clear up what may seem to be discrepances between the two sets of figures in the accompanying table:

Nat. Safety Council Contest Year	Frequency Rate	WVP & P's Fiscal Year	Frequency Rate	Lost-time Accidents
1943-1944	54.34	1944	63.39	89
1944-1945	77.08	1945	55.82	76
1945-1946	10.71(*)	1946	10.05(**)	17
1946-1947	5.85	1947	5.28	9
1947-1948	7.58	1948	4.64	8
1948-1949	.59	1949	2.35	4
1949 (***)	2.97	1950	1.88	3
1950	1.27			

(*) This was the first full NCC contest year during which Tyrone Mill's new safety program was in force. The drop in frequency from the preceding year was 66.37.

(**) This was the first full fiscal year of the Company for the new safety program. The drop in the number of lost-time accidents from the preceding fiscal year was 59, while the decrease in the frequency rate was 45.77.

(***) During 1949 National Safety Council changed its contest year to correspond to the calendar year. Thus there were two sets of figures issued that year, one at the end of June, the other at the end of December.

In July, 1949, Robert K. (Spike) Meredith was named to a full-time position as Safety Director at Tyrone Mill. In connection with improvements made in safety at the Mill, Mr. Meredith reports:

"There is no complacency by anyone—management or employees—about accidents. We study each accident report very carefully. When we determine the cause we guide our program of education accordingly.

"One great help to our Safety Committee is that every employee in the Mill has been thoroughly trained in the use of the various items of safety equipment, protective devices and instruments that come within the scope of his work. Although we have a permanent Safety Committee—and membership on this is keenly sought—in effect every employee at Tyrone is a member of the committee. Each man is responsible for the safety of his fellow workers, his own safety and that of the plant.

"No one here looks on safety measures or safety devices merely as fancy trimmings. The men have learned to appreciate what these things mean. They know how to do their individual jobs the way they should be done, and they translate their own desire for safety in consistently safe work practices."

Quality Control As An Aid In The Manufacture of Glassine

Donald Newcomb[1]

As is the case in almost all paper mills, quality control has become an important factor in the production of glassine papers. This has been brought about by the demand for a high level of quality and for that same level of quality to be maintained consistently. The increasing use of high speed waxers, presses, laminators and bag machines requires greater strength characteristics as well as mechanically perfect paper. At the same time increasing demands are being made for high quality glassine which means high greaseproofness and high transparency. Quality control is one step which is being taken in an effort to obtain the necessary results to meet these standards.

Very briefly, quality control is (1) knowing what you have to start with, or raw material control, (2) what you are doing to those raw materials or process control, and (3) what you have made or product control. From the accumulation of test data thus obtained it will be much easier to see where improvements can be made in the product or where controls over the processes are necessary.

[1] Technical Control Dir., Reigel Paper Co.

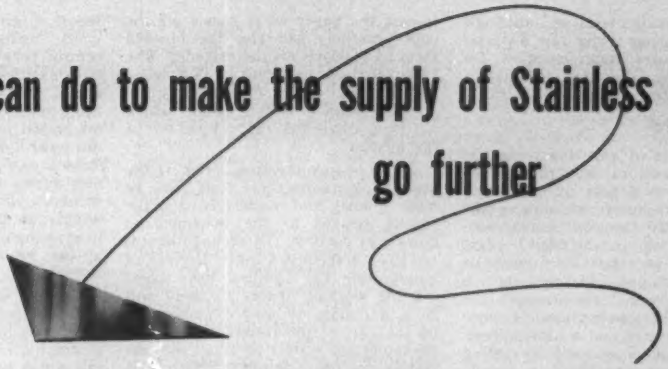
Raw Material Control

If our finished products are to meet rigid specifications we must also look to our raw materials to meet certain specifications. Only in this way will we be assured of the uniformity of supplies necessary for the development of the characteristics peculiar to glassine papers. This is not only true of pulps but equally true with such items as water, alum and other chemicals, plasticizers, starches, resins, waxes, etc.

Pulp being the greatest factor contributing to quality in a glassine sheet it is only natural that in testing our raw materials we concentrate our efforts on pulp testing. All shipments of pulp are sampled for ball mill and chemical testing. From the results of these tests we know the pulps' comparative strength characteristics of beating time, mullen and tear, as well as its other properties such as permanganate number, pitch, moisture and dirt content. The results of these tests are graphed according to supplier so that trends or off quality pulp may easily be spotted before any sub-standard pulps get into the furnish. In this way we are able to keep our suppliers, as well as ourselves, informed of the uniformity or non-uniformity of their pulps.

Water being the next important factor in the production of any paper and especially those papers that must meet high greaseproof specifications, we make routine tests to determine the uniformity of cleanliness of our process water. When abnormal conditions are indicated by these tests the water department is so informed just as though they were an outside supplier furnishing us with a product. Deliveries of liquid alum and plasticizers are sampled and checked for strength of solution. The moisture content and heat value of coal deliveries are ob-

What you can do to make the supply of Stainless Steel go further



Make full use of the steel you get by keeping down scrap losses in your shop

Keep these points in mind, too, when you order Stainless

Tell your supplier exactly where you'll use Stainless and how you'll fabricate it.

Minimize scrap losses at the mill by ordering the exact sizes that you will use.

Indicate, if possible, acceptable alternates in composition, gage and finish.

Holding your own scrap losses to a minimum to make the fullest use of the steel you receive is good shop practice anytime. It's especially important today.

Here are a few suggestions that may help you stretch your supplies. See that they are followed. Add other rules that your operations may dictate.

1. **Lay out your jobs to use steel as economically as possible. Then order to the closest possible size.**
2. **Keep your stock of Stainless Steel carefully separated by grades.**
3. **In your storage areas, make sure that surface finishes are protected properly.**
4. **Lay down strict rules for careful fabrication and handling. It will help you reduce rejections.**

No matter how carefully these rules are followed, there'll always be a certain amount of scrap. To keep new steel flowing to you, get your scrap back into circulation as quickly as possible by *promptly* turning in every pound to the mills.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND · COLUMBIA STEEL COMPANY, SAN FRANCISCO
NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM · UNITED STATES STEEL COMPANY, PITTSBURGH
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

1-001

UNITED STATES STEEL

tained from routine tests, and although this does not come under raw material inspection, boiler water samples are tested daily by laboratory technicians for better boiler feed water control.

Process Control

The function of any bleach plant is to furnish stock to the beater room with the proper degree of uniformity of furnish, brightness, cleanliness and consistency. To this end process controls are set up in the bleach plant whereby the necessary uniformity of quality is obtained. Bleach liquor is periodically checked for strength and clarity and the amount used is automatically measured and recorded. Temperature recorders are used throughout the bleach plant as a check on bleaching temperature and bleaching cycles. Before being washed, each batch is checked for brightness and chlorine residual. If the brightness does not meet the standards that particular batch is run until the brightness does come up to the specifications. In this way a uniform pulp brightness is assured, using the minimum amount of bleach liquor to retain the maximum amount of strength. In our mill, practically all of the stock washed after bleaching passes over one large washer which is equipped with water meters and a discharge consistency regulator which insures uniformly washed stock delivered to the beater room at a uniform consistency.

It has often been said that a sheet of paper is made in the beater room. This is particularly true in the case of glassine where beating and hydration play such an important role in the developing of such characteristics as transparency and greaseproofness. The beating cycle is followed very closely by checking pH, consistency and hydration. Here emphasis is made on uniform consistency control which we believe is the key to uniform quality on the paper machine. Automatic consistency regulators are used extensively, their operation being checked periodically to insure their proper functioning. These same tests are made at, or just prior to, the paper machine to insure the delivery of uniformly prepared stock to the machines. When the sheet is being treated in any way on the paper machine itself, with materials such as plasticizers, starch solutions or wet strength resins, periodic checks are made to determine the uniformity of feed and concentration of the additives.

Product Control

So far we have discussed the items of raw material control and process control, and now we must find out what we have made. This phase comes under the control testing station which acts as a yardstick to measure the quality of the finished paper.

In the manufacturing of glassine it is necessary to super calender the sheet in a separate operation after the paper machine. This gives us an opportunity to test the paper as it comes off the paper machine and also the finished sheet as it comes off the calender. The sheet off the paper machine is checked for weight, mullen, tear, moisture, plastic retention and a factor which we have established as a measure of the quality.

To be of any practical value to the machine operators these tests must be made quickly and accurately, and the results relayed to the machines as quickly as possible. To accomplish this we have developed a quick method of humidifying the samples, have layed out the working spaces so there will be a minimum of wasted movements on the part of the testers and have a tel-autograph system to relay the test results to the machines. With this system, test results are at the machine 15 minutes atfer the sample first comes into the testing station. At the machines the test results are plotted on machine control charts, upon which operating specification limits have been drawn. In this way the operating personnel know at all times the quality level of the paper which they are making. In the case of the super calendered sheet the samples are checked for weight, mullen, tear, moisture, plastic retention if necessary, transparency and greaseproofness. The test results on the super calendered sheet are also sent to the proper paper machine and calender stack. In this way the operating personnel get complete information as to whether or not the paper is within the specifications.

As you might realize from this description, the control testing station is the heart of our control system. As such it is under the constant supervision of a quality control supervisor who, in addition to overseeing the operation of the testing stations, is responsible for seeing that every effort is being made by the operating personnel to maintain the standard specifications. This involves not only following the test results but also making visual inspections of samples from the machines and from the super calender stacks. It is the responsibility of the control supervisor to detect and record any and all defects which may cause the paper to be unfit for the purpose for which it has been made. The control supervisor also is responsible for the inspection of the finished rolls for levelness and mechanical condition. Any paper which does not meet the physical specifications or does not pass the visual inspections is rejected as being defective paper and thus is set aside from the normal production to be reworked or sold as an inferior grade of glassine.

As further aid in following the mechanical functioning of the paper the finishing department keeps daily records of the mechanical difficulties encountered in processing the paper. These reports coupled with the reports of the quality control supervisors forms the basis for an overall daily report of the quality of our finished papers. This report is given daily at a meeting at which management, production and control personnel are represented. All irregularities are presented and discussed with suggestions and decisions being made as to how defects can be minimized. At the end of each week the control department issues a weekly summary of the defective paper which also shows a comparison to the performance of the previous week. These weekly summaries are also graphed to give the overall picture and to show up any trends or outstanding irregularities.

The use of some of the more modern concepts of quality control have been used to great advantage for the evaluation of certain basic fundamentals which has given us a better understanding of the variables usually encountered with test data. A good example of this has been a statistical evaluation of ball mill test data to determine the significance of variations of the test results. From the results of this analysis the limitations of the ball mill test itself were computed which gave us a much better understanding of the significance of the ball mill test.

A similar study was made of the consistency test as it is made on a routine basis. From the results of statistically processing the data obtained it was found that the limits of the test method were plus or minus 0.10 percent. Three sigma limits for individual consistency regulators were then computed to find the significance of variation of consistency through the regulators. From this study it was found that a large proportion of the variability measured at the consistency regulators was due to the variability of the test method; and hence, not due to the faulty operation of the regulator.

Many studies have been made using the methods of statistical analysis for determining variations in basis weight. The results of these studies indicated a need for better consistency control. Suitable regulators were installed on one machine to see whether or not it would be possible to improve the quality level of the paper by obtaining more uniform control over the basis weight. After making the necessary installations it was found that basis weight variations had been reduced to the point where the machine runners were averaging only one stuff gate change a shift whereas before it had been almost an hourly duty to make stuff gate changes. It was also interesting to note that changes in basis weight were very gradual and it could be predicted, by following the control chart, when an adjustment should be made at the stuff gate and how much of an adjustment should be made. When such changes were made, the effects were obtained without the customary lag noted in the past. The machine and calendar waste was cut considerably which was due in part to the absence of tearouts at the reel and

the fact that there was no off-weight paper cut off at the reel. Needless to say that after this experience similar installations have been and are being made on other machines.

Statistical studies also have been made on test methods such as greaseproofness and transparency. The results of the study on the greaseproofness test showed statistically that there is greater variability in the greaseproofness of paper than there is in the test method or variability between testers. As a result of a study made of transparency data many transparency specifications were rewritten to conform to the capabilities of the machines as determined by statistical analysis.

At this point a word should be said about the writing and establishment of specifications. At Riegel we have attempted to arrive at specifications which will insure the desired qualities necessary for the customer and yet make it practical to operate the machines at profitable speeds. This has not always been an easy job. First it has been necessary to establish what qualities the customer actually requires and the degree of importance of each of these qualities. These values then must be compared with values which the machines are capable of meeting which have been established through the accumulation of test data which has been statistically analyzed. Only in this way can realistic specifications be written. It is not always necessary or desirable to establish the three sigma limits to determine operating specifications. However, it is a tool which is being used to develop more realistic specifications by showing management as well as production whether or not it has been possible to maintain certain specifications. More often the use of distribution charts and curves are used as a guide to proper specifications.

After standard specifications have been written and established it is up to the control department to see that these specifications are followed. As a step in this direction our control department is charged with the responsibility of making certain that all machine production orders have the proper specifications. This is done by checking the machine production orders, as written by the production planning department, against the standard specifications. In this way we are assured that the paper produced will be made against the proper specifications.

Although the quality control department is a function of production in our organization, the control testing stations are manned and supervised by personnel who consider themselves a part of control rather than production. In this way we have impartial testing with objective results and decisions made more positive.

As mentioned above, the control department is a function of production and as such is vitally interested in production controls. In this respect we have had a hand in the investigation and development of consistency controllers, their operation and maintenance. Likewise, we have been instrumental in the development of pH control. We have developed and installed a more uniform process for the continuous application of plasticizing materials. We also have the responsibility of supervising the operation of these plasticizing systems. Where gloss is a critical factor we have successfully controlled this by the application of a gloss meter. We are likewise studying some of the more recent developments in controlling stock preparation.

Up to this point we have emphasized the importance of control testing, the use of instruments and automatic controllers as essential features of our quality control program. However, it would be amiss to conclude without saying a word about the importance of having all operating personnel conscious of and have a desire to obtain the goals of your quality program. The human element is too often forgotten, but I can assure you that it is one of the major items in any quality control program.

I hope that these few remarks have given you at least a bird's eye view of how Riegel is using quality control as an aid in the manufacture of glassine papers and that some of the ideas may be useful to you in your various operations.

Problems and Challenges*

Lewis Sisson
Retiring President, Paper and Twine Assn.

I think you will agree with me that we are a part of one of the most challenging and intriguing industries, and that the new advances as well as techniques in producing interesting products serve as a never ending spur to keep us alert as salesmen. The longer I am associated with our breath-taking industry the more I realize that even with many years of association that I have much to learn, and without study none of us can properly present our products to the trade we want to serve.

The art of selling is as much a science as is any other profession and we must know the basic principals governing that science before we can properly formulate a presentation that will consummate a successful sale. Therefore, it is my earnest hope that the younger men coming along will take advantage of subscribing to one of several excellent available courses in selling, particularly now while they have some leisure time. It may be later than we think! Unfortunately for those who have joined our industry in more recent years they never have really had to dig for business. However, we all know that for every action there is an equal and opposite reaction, and one of these days we again will have a buyers' market. Competition may well be heart-breaking so, again, my plea to those who manage sales is that your men are properly educated to do a productive selling job, not only in the mine run of paper and paper products but in the field of specialties. Many of these specialties range outside of what we consider the competitive field and produce better profits. Many specialties are valuable for other than their functional uses.

My own observation is that on the average one or two men in a sales group interest themselves, or have a natural talent for specialty selling. They take the time to awaken the dormant interest of a prospect and have the patience to eventually garner a piece of business that should require very little effort to hold, so I am sure that most of you are in accord with me regarding the importance of good sales training.

As to general business conditions, in spite of the fact that we have seen a softening in retail prices, and some unusual dumping of merchandise in certain sections of the country, these inventory sales will be short lived because most of the items getting the heavy promotion will be moderately scarce within the next six months. That means the supply will not meet an inflation sparked demand. Some items, such as soft goods, will be plentiful but priced higher to reflect higher wages and materials cost. Production will continue high—defense contracts will be placed faster but never enough to take care of all concerns seeking them: In other words, production of war materials and sufficient civilian needs

*Excerpts from an address before the Annual Meeting of the Paper & Twine Assn.

taken care of. Of course that is short of bigger wars.

The office of price stabilization is right now doing some shadow boxing, definitely for political purposes. Not only are basic regulations too complicated but the O.P.S. Staff is too small for us to expect enforcement soon. It apparently means several months of complete price confusion and some inevitable shortages. Later, some substitute control no doubt will be worked out in an effort to better curb inflation. However, with labor unions working overtime to get all they can from this present administration, prices will probably spiral upward. Incidentally, signs accumulate that O.P.S. Offices constitute the biggest democratic patronage pool since W.P.A. days.

In our own industry we are having serious problems despite high production to date. With Swedish pulp priced at double the frozen domestic price and the supply of sulphur more or less in doubt, our present high rate could easily fall off the coming year. There are many factors governing the immediate or near future of our industry rather difficult to evaluate, and right now I have no desire to be an oracle.

I should say something about C.P.R. 22, which is something most of us would prefer to side step. I do think, however, that some basic changes will have to be made before it is workable. When it is stated that no relief will be granted individual companies if the industries profits (Note: that does not mean an individual mill) exceed 85% of (the excess profits tax base period) that the computation must be made before taxes, before special amortization and other unusual expenses, and on that basis small companies could easily be driven to the wall. There will certainly be much confusion and changes made before enforcement occurs. I would say that the main consolation for business men is the fact that the order is so conflicting and complicated and unworkable that enforcement will be almost impossible for some time. In fact, further interim orders are likely before this confusion is cleared.

On the over all picture one can well wonder how long we can go on buying our way out of our mistakes. It's like the story of the moving Russian farmer with a sled carrying his family and entire possessions. Pursued by hungry wolves, the first thought to appease them by throwing out a bag of food, then a calf, then another and another calf, then in desperation, everything else gone, one of his children. The wolves stopped for a while but they always caught up again, so another child, another, yet another until they were all gone and the pursuit kept on, and the farmer was the final victim. Something to mull over!

Getting back to our own field of endeavor, I ran across an article entitled "Good Business Ethics," written by Ogden Fleming of the Good Business Magazine, and I believe in an organization such as ours it can be timely. A group of salesman met once each month for the purpose of discussing sales problems, types of sales resistance encountered and methods of overcoming them, new products or side lines appearing on the market, and new phases of sales psychology. Many of the men were in similar or competitive lines of business, so they were careful to see that the helpful information they offered was of a general nature. One evening a member arrived with a guest, a man whose outstanding sales record in a highly competitive field was recognized by almost every man present. After the meeting two men employed by companies competing with his own stopped to shake his hand and congratulate him on his remarkable success. He chatted with them for a few minutes and, to their amazement, told them about a company opening a new branch which would be in need of their product. Later, his host, who had listened to the conversation, asked him why he had given competitors such valuable information—"Those fellows will be down there tomorrow morning trying to sell that new company." The guest smiled at his host's blank look! "They are both young, working their way up the ladder I have already climbed. They need a little boost now and then. Early in my selling career I found I never lost anything by helping the other fellow. As a matter of fact, I have kept a diary now for ten years and I can prove that for every tip I have passed along I have made at least two good sales myself. I have yet to see a helping hand remain empty."

And now, back to our own activities. Last June, at our annual meeting here, our paid membership totaled 476. At that time we increased the dues from $10.00 a year to $15.00, setting aside $2.50 of the dues for educational purposes. During the year we had 42 resignations and four members were dropped for non-payment of dues, but we have gained 72 new members, which now brings our paid membership at this time to 502, or a net gain of 26 members. I trust the membership will bear in mind that our limitation is 600, and that you will cooperate with our in-coming president during the coming year in bringing this up to the limit.

During the year in the educational field we have contributed $600.00 to the scholarship fund of the Coarse in Pulp and Paper Technology of Western Michigan College at Kalamazoo, Michigan. We have also contributed to that institution $150.00 for a student award, that student having not yet been selected. We also contributed $150.00 as a student award to the Institute of Paper Chemistry at Appleton, Wisconsin, making a total of $900.00 used for educational purposes, leaving $350.00 available for this work during the coming year, in addition to any accumulation from next year's dues.

We have continued to work with the following associations: Midwestern Merchants, The Illinois State Paper Merchants, The Wisconsin Paper Merchants, The Middle States Wrapping Paper Group and The Central States Paper Trade Group on a program of adaptability tests for paper salesman. We have cooperated with the same organizations in offering a basic sales training for salesmen. Both of these programs have been largely used by both mills and merchants.

Our secretary's office has continued the publishing of a Weekly News Letter and has kept you informed on news items in the trade and industry, production reports, government regulations, available surplus merchandise, merchant inventory reports, and through it's columns has coperated with the Salesmen's Association of the Paper Industry in helping secure employment for available paper salesmen, and apart from this cooperation has brought employees and employers together in many instances. The secretary's office through the medium of correspondence, telephone and personal interviews, both at the office and in the field, has assisted our membership in many problems of sales policy and otherwise. This feature of the work has been growing each year and has proven of definite value to manufacturers, converters and wholesalers. No nominations were made this year for our annual award for accomplishment by members of the industry or trade.

We have been working on a program of conducting a tour of paper mills for employees and others, as a feature of education for our members, and hope to announce something definite on this in the near future. We feel that this program constitutes a constructive activity which will be of great value to individual members and to the industry and trade at large, and we hope it will be continued on an ever expanding scale.

STUDY PACKAGING

A study of United States packaging methods just completed by an ECA mission is expected to result in wider standardization of containers by Western European countries.

The mission, consisting of seventeen representatives of the packaging field in seven European countries, visited twenty-five paper products plants in fourteen states during a six-week tour arranged by the Office of International Trade. The study was sponsored by the ECA as part of its technical assistance program.

Members of the group said that improved paper and paperboard manufacturing methods in Europe probably also would result from the study, and that elimination of trade barriers to assist this, together with greater integration to attain mass production, would be recommended. Improvement in shipping containers is especially needed.

SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*MOLTEN SULPHUR

The discharge lines from the wells deliver the sulphur into sumps at collecting stations which are located near the area being "steamed."

The sump is dimensioned to suit operating conditions, as well as the number of wells supplying sulphur. Cast iron has been found the most suitable material for lining the sump, and for the steam coils on the bottom and at the sides which keep the sulphur in a liquid state. When the sump is reasonably full, pumps force the liquid sulphur through insulated pipe lines to the vats. The pumps are especially designed for this service, the moving parts being either submerged in liquid sulphur or steam-jacketed.

Loading operations at our Newgulf, Texas' mine

TEXAS GULF SULPHUR CO. INC.

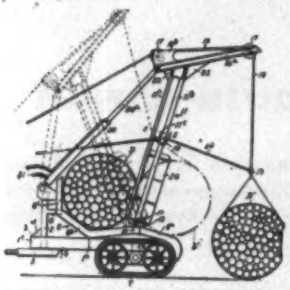
75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

Patent Abstracts

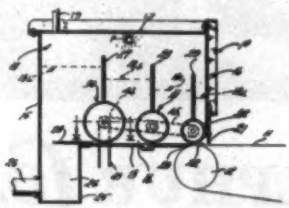
● *In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.*

U.S. 2,550,185 — Self-Loading Vehicle. Tom N. Busch, Georgetown, S. C. Filed January 2, 1948—Issued April 24, 1951.



In apparatus of the class described, a base having a base frame including parallel longitudinal side beams, and a cross beam connecting the same adjacent one end of said frame and a draft connection at the other end of the same, road traversing elements supporting said base beam, two side bars, one mounted at either side of said base frame and each including a bridge-like portion located over said road traversing elements and including upwardly directed load stops located between said bridge-like portions and the draft end of said base frame, a cross beam connecting said bridge-like portions, an A-frame pivoted to said last named cross beam adjacent its ends, an arm carried by the upper end of said A-frame and having rope guides, a load lifting cable taking over said guides, and a double acting hydraulic ram mounted on said base and operatively connected with said A-frame for swinging it back and forth on the pivotal axis of the A-frame.

U.S. 2,550,552—Stock Inlet. John E. Goodwillie, Beloit, Wis., assignor to Beloit Iron Works, Beloit, Wis.—Filed September 5, 1946—Issued April 24, 1951.



A stock inlet comprising a box defining a stock chamber having an outlet at the forward bottom end and an inlet at the rear bottom end, a plurality of baffles in said chamber ahead of said outlet and terminating in spaced relation above the bottom of the chamber, a rectifier roll rotatably mounted beneath each baffle in close running clearance relation with the baffle thereabove and the bottom of the box therebelow, said rectifier rolls and baffles dividing the chamber into a plurality of compartments between the inlet and outlet for the chamber, and said rectifier rolls being of progressively decreasing diameter to coact with the baffles for providing flow passages through said rolls only between the compartments of decreasing size thereby increasing the flow velocity of stock between the compartments for feeding of stock at high velocity to the outlet.

U.S. 2,550,676 — Combined Waste-Heat Boiler and Chemical Recovery Unit. David Dalin, Sodertalje, Sweden. Filed October 17, 1945—Issued May 1, 1951.

A combined waste heat boiler and chemical recovery unit comprising: means defining an upright combustion chamber having a ceiling; means for introducing chemical containing combustibles into the combustion chamber to be burned therein and to have the chemical to be recovered accumulate upon the floor of the combustion chamber; means defining a discharge opening at the bottom of the combustion chamber from which the accumulated chemical may be discharged as a liquid; a plurality of substantially horizontal boiler fluid containing tubes providing supporting members near the ceiling of the combustion chamber; a group of side-by-side serpentine coils hanging from said supporting members with their legs vertical and substantially uniformly distributed across the horizontal area of the combustion chamber to provide a maze of vertical cooling surfaces in the upper portion of the combustion chamber; headers at the top of the combustion chamber to which the ends of each serpentine coils are connected and whereby boiler fluid may be circulated through the serpentine coils; means defining a gas pass leading from the upper portion of the combustion chamber, the entry to said gas pass being above the bottom of said group of serpentine coils so that the combustion gases leaving the combustion chamber must flow between said coils to reach the gas pass whereby chemical-containing fly ash entrained in said combustion gases impinges the coils to accumulate thereon; and means for vibrating said coils to dislodge accumulated fly ash from the coils in pieces of sufficient size and weight to drop to the bottom of the combustion chamber for reprocessing.

U.S. 2,550,691—Noncorrosive Detergent Compositions. Jay C. Harris, Dayton, Ohio, assignor to Monsanto Chemical Company, St. Louis, Mo. Filed November 25, 1949—Issued May 1, 1951.

A detergent composition comprising the following essential ingredients in parts by weight:

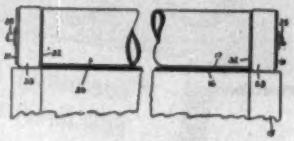
	Parts
Condensation product of tall oil with ethylene oxide containing from 0.5 part to 2.3 parts of ethylene oxide per part of tall oil	10-25
A phosphate material selected from the group consisting of tetrasodium pyrophosphate and sodium tripolyphosphate (anhydrous basis)	20-60
Alkaline material selected from the group consisting of sodium carbonate, sodium bicarbonate and mixtures thereof (anhydrous basis)	10-25

said composition containing in addition from 6% to 25% by weight, based on the combined weight of said phosphate material and said alkaline material, of a sodium silicate having an

$$Na_2O \cdot SiO_2$$

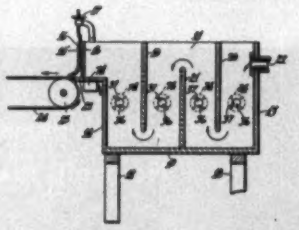
ratio of from 1:2 to 1:3.2.

U.S. 2,550,774—Lump-Breaker Roll for Papermaking Machines. Everett W. Clem, Shrewsbury, Mass., assignor to Rice Barton Corporation, Worcester, Mass. Filed June 22, 1946 — Issued May 1, 1951.



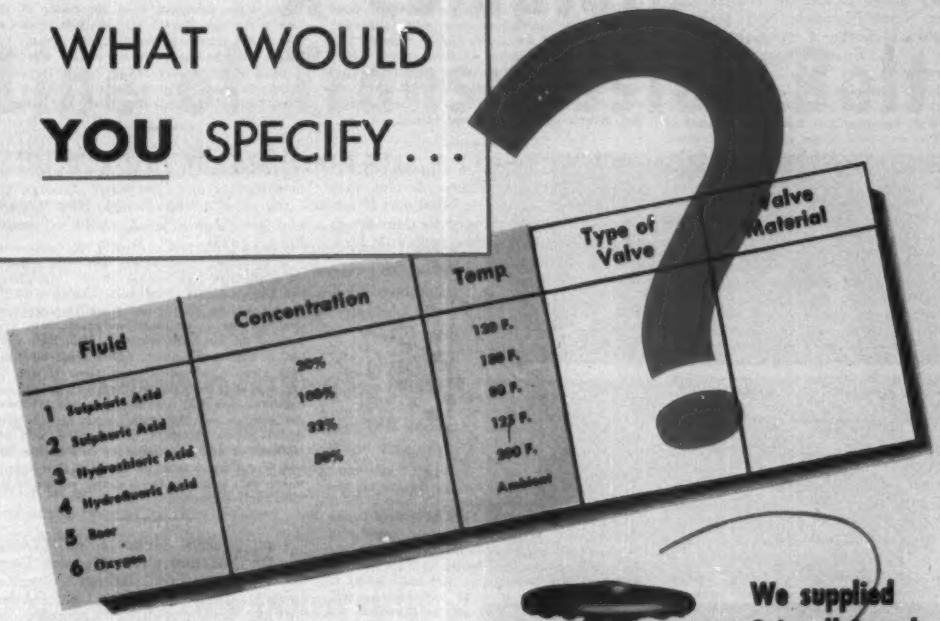
In a paper making machine having a couch roll, a wire belt trained over said couch roll for carrying a sheet being formed, means to rotate said couch roll, a lump-breaker roll above said couch roll for operation on said sheet, means to support said lump-breaker roll for free rotation about its longitudinal axis and for free movement toward and away from said couch roll, said lump-breaker roll normally being adapted to engage the upper surface of said sheet, expansible means adjacent the opposite end portions of said lump-breaker roll for engaging, when expanded, the periphery of said couch roll near each end thereof for moving said lump-breaker roll away from said couch roll and simultaneously effecting a direct drive between said couch roll and said lump-breaker roll, said expansible means comprising a flexible cylindrical diaphragm carried rigidly upon and coaxially of said lump-breaker roll, means disposed axially of said lump-breaker roll for supplying fluid to said diaphragms, and means including a valve disposed remote from said lump-breaker roll for directing the flow of fluid to said diaphragms thereby selectively to control the expansion and contraction of said diaphragms.

U.S. 2,550,776 — Papermaking Machine Flow Box. Everett W. Clem, Shrewsbury, Mass., assignor to Rice Barton Corporation, Worcester, Mass. Filed March 3, 1947—Issued May 1, 1951.



In a paper making machine, the combination of a travelling forming wire, a flow box having horizontal walls and upstanding walls over and between which a stream of pulp and water slurry is adapted to be passed, means disposed at one end of said flow box for receiving a stream of the slurry, means disposed at the other end of said flow box for depositing a thin stream of the slurry upon said forming wire, a plurality of relatively thin diaphragms connected to said horizontal and upstanding walls as constituent parts thereof, said diaphragms being thereby exposed to the slurry stream passing through said box and said diaphragms being spaced apart along said box's length in the direction of slurry stream flow, and means for imparting high frequency vibrations to each diaphragm so as to propagate compression waves back and forth within the slurry as it passes through said flow box and in a direction transverse to the direction of slurry flow thereby to effect a homogeneous suspension of the pulp fibers throughout the slurry.

WHAT WOULD **YOU** SPECIFY . . .



In several of these cases other body materials or diaphragms would serve as well. But the really important fact is the unmatched versatility of Grinnell-Saunders Diaphragm Valves in handling corrosive fluids, gases, compressed air, food and suspended solids . . . in lines where corrosion, abrasion, contamination, clogging, leakage and maintenance are problems.

Grinnell-Saunders Valve bodies are stocked in cast iron, malleable iron, stainless steel, bronze, and aluminum, with other materials available on special order. Valve bodies can be lined with lead, glass, natural rubber or neoprene. Diaphragms are available of natural rubber and a number of synthetics to suit particular service conditions.

The Grinnell-Saunders Valve Division will be pleased to submit recommendations upon receipt of complete information covering service conditions.

Features of the Grinnell-Saunders Diaphragm Valve

- diaphragm absolutely isolates working parts from fluid
- diaphragm lifts high for streamlined flow in either direction
- diaphragm presses tight for positive closure
- body, lining and diaphragm materials to suit service
- simple maintenance—diaphragm easily replaced

We supplied Grinnell-Saunders Diaphragm Valves with . . .

Body Material	Diaphragm Material
1 Rubber lined	Natural rubber
2 Cast iron	KEL-F
3 Glass lined	Butyl
4 Magnesium	KEL-F
5 Polished bronze	White diaphragm
6 Cast iron*	Neoprene

*For oxygen service a low flash point lubricant is supplied. All valves for oxygen service are subjected to 300 lb. air underwater test.

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U.S. 2,550,862 — Method and Apparatus for Manufacturing Asbestos-Cement Sheet Products. Walter Reinecker, North Plainfield, N. J., assignor to Johns-Manville Corporation, New York, N. Y. Filed February 23, 1946 —Issued May 1, 1951.

A shingle making machine comprising, a continuously operating endless belt conveyor, two intermittently operating belt conveyors mounted in parallel at each side of the continuous conveyor, means for delivering sheet strip segments of plastic fiber-cement composition at uniformly spaced intervals on the surface of the continuous conveyor, a carriage mounted for reciprocation transversely over the surfaces of all three conveyors, a removable stop member mounted to arrest advance of a segment along the surface of said continuous conveyor at the point at which the path of said carriage traverses the surfaces of said conveyors, and punching presses disposed in the paths of each intermittent conveyor beyond the traverse path of said carriage, each press comprising an inverted die mounted above the intermittent conveyor, and a vertically reciprocable punch plunger mounted below the conveyor and in vertical alignment with the die in its punching position.

U.S. 2,551,087 — Polyethylene - Wax Laminating Composition. Philip S. Barnhart, West Springfield, and John C. Miller, Westfield, Mass., assignors to Westfield River Paper Company, Inc., Russell, Mass. Filed November 3, 1945—Issued May 1, 1951.

A laminating cement comprising microcrystalline wax, polyethylene, a resin compatible with the mixture of wax and polyethylene, and a plasticizer, said wax being present in from 67-80% of the total, said polyethylene being present in from 0.1 to approximately 10% of the total, said resin being present in from 20-25% of the total and said plasticizer being present in from 8-10% of the total.

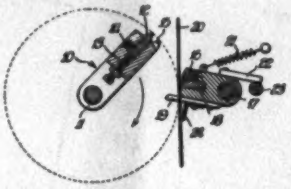
U.S. 2,551,090 — Knocked Down or Folding Structure Made from Acetate Sheeting or the Like. Robert Morris Bergstein, Cincinnati, Ohio, assignor to Robert Morris Bergstein and Frank David Bergstein, trustees. Filed September 6, 1946—Issued May 1, 1951.

A knock-down container having at least one element of paperboard, and another element constituted of a plurality of panels of transparent, plastic, non-scorable sheeting, all in articulation, the line of articulation between the paperboard element and a sheeting panel being formed by a score line in said paperboard demarking a flange secured to said sheeting panel, and the line of articulation between contiguous sheeting panels being formed by a strip of thin bendable substance adhered to marginal portions of said sheeting panels, and being substantially narrower than said panels.

U.S. 2,551,324 — Container. Robert T. Frieders, Menasha, and John Paul Strange, Jr., Neenah, Wis., assignors to John Strange Pail Company, Menasha, Wis. Filed April 7, 1947—Issued May 1, 1951.

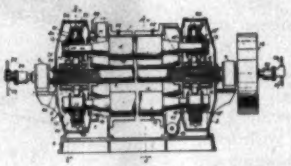
A container formed from paper board material comprising a box part having front, rear and end wall panels and a cove part for said box part having top, front and end wall panels, said cover part being adapted to telescope over said box part to bring the front wall panels of the box part and the cover part into juxtaposed relation, abutment elements extending from the end wall panels of the box part adjacent the top edge of the front wall panel and adapted to be bent over to extend along the outside face of said front wall panel, and cooperating abutment forming elements positioned on the inside face of the front wall panel of the cover extending along said front wall panel in spaced relation to the top thereof, said abutment elements being wholly contained within the cover part when the cover part is in closed position and being operated to automatically interengage to retain the cover part in closed position and prevent opening movement thereof.

U.S. 2,551,335—Web Cutting Mechanism. Thomas E. Piazze, Mount Vernon, Ohio, assignor to Shellmar Products Corporation, Mount Vernon, Ohio. Filed March 29, 1946—Issued May 1, 1951.



In a web cutting mechanism, the combination comprising a rotatable knife holder and a chisel knife carried thereby, an oscillatable anvil holder and an anvil mounted therein, and cooperating intermittently contacting elements on said holders for actuating said anvil holder in timed relation with said knife holder when said knife holder is rotated, whereby said knife will sever a web simultaneously across against said anvil as the web passes therebetween.

U.S. 2,551,946—Machine for Working Paper Stock and Other Materials. Anton J. Haug, Nashua, N.H. Filed August 21, 1947—Issued May 8, 1951.



In a machine for working paper stock and the like, the combination of a casing provided with an approximately cylindrical horizontal inner wall surface, a crushing roll in said casing extending longitudinally thereof, means supporting said roll for rotation around its own axis, also for movement toward and from said surface and for orbital rotation around the axis of said cylindrical surface; said means comprising bearing rolls in which the opposite ends of said crushing roll are mounted, a shaft supported in said casing coaxially with said surface, spiders on opposite ends of said shaft, said spiders being provided with guideways in which said bearing rolls are supported for rolling movement toward and from said cylindrical surface of the casing, and means supporting said bearing rolls yieldingly between opposed pressures so that they support said crushing roll yieldingly in a position between said cylindrical surface and said shaft.

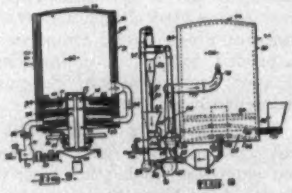
U.S. 2,552,051—Paper Sundae Dish. Walter P. Margulies, New York, N. Y., assignor, by mesne assignments, to Lily-Tulip Cup Corporation. Filed June 7, 1949—Issued May 8, 1951.

A one piece conical paper sundae dish formed from a substantially circular paper blank and provided with only two diametrically opposed folded plaits extending from the center of the dish to the edge thereof with the side creases of the plaits extending diametrically through the center and having a frustro-conical side wall merging at its smaller end in a reverse conical hump, the cone angles of the side wall and the hump being obtuse and substantially the same.

Can. 473,225—Machines for Preparing Fibrous Materials for Pneumatic Conveyance and Discharge. George W. Luhrmann, Cedar Brook, New Jersey, U.S.A. Filed Sept. 30, 1949 — Issued May 1, 1951.

In apparatus for preparing fibre stock comprising a vibrating feed member for the stock having a discharge portion, feed control means pivotally carried by the feed member and arranged for oscillatory movement in an arc substantially tangent to the discharge portion of said feed member, a stationary support adjacent the vibrating feed member, adjustable stop means carried by said vibrating feed member and arranged for engagement with said control means, and a connection between said stationary support and the feed control means adjustable in correlation with adjustment of said stop means to vary the location and length of arcuate movement of the control means with respect to the discharge portion of the vibrating feed member.

Can. 473,266—Methods and Apparatus for Roasting Ores. Kenneth Duncan McBean, Trail, British Columbia, Canada, assignor to The Consolidated Mining and Smelting Company of Canada, Limited, Montreal, Quebec, Canada. Filed Oct. 29, 1947—Issued May 1, 1951.



In a furnace for roasting mineral sulphides in gaseous suspension, a vertically elongated, unobstructed combustion chamber, an inlet for dried comminuted mineral sulphide particles in the upper part of said chamber, at least one collecting hearth below said combustion chamber, an outlet for roasted ore particles and an outlet for hot combustion gases from the collecting hearth, at least one drying hearth below the collecting hearth for drying the combustion chamber feed material, conduit means extending from the combustion chamber to a drying chamber defined by the collecting hearth and the drying hearth, an inlet for moist sulphide particles to the drying hearth, an outlet for dried sulphide particles from the drying hearth, an outlet for gases from the drying chamber, means for conveying dried sulphide particles from the drying chamber to the combustion chamber, a rotatable shaft extending from a point below the furnace to terminate a short distance above the uppermost collecting hearth-rabble arms carried by said shaft, and rabbles carried by said arms adapted to move on said hearths.

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Square-cut edge construction, no folds. Made with specially woven hard duck giving unusual strength with low stretch. Friction between plies is the highest quality obtainable, scientifically compounded for long life, extra flexibility. U. S. Royal friction surface provides superior traction on pulleys. Roll and cut lengths or made endless by patented U. S. Royal-Splice or by 'round and 'round method.

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Folded edge construction. A general purpose belt known for outstanding operational economy and for maximum dependability in severe service. Duck is woven to give strength and flexibility lengthwise and body stiffness crosswise. Special friction between plies assures remarkably long flexing and aging life.

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Royal Cord Endless Belts are designed for use on general purpose flat drives, ranging from light to heavy duty, where the use of low stretch, high tensile strength, extra flexible, premium construction, endless belting is mandatory. Furnished in seven weights; special constructions available for use under conditions of excessive oil, heat, abrasion and corrosive chemical fumes.

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Designed for small machine drives. Constructed of plies of tough cotton duck, thoroughly impregnated with specially compounded rubber. A light, flexible true-running, elastic belt that performs extremely well at high speeds and withstands frequent shifting. Royal Junior has a wide range of application and requires minimum care.

U. S. SPEEDAGE CORD ENDLESS BELTS

For use where long wear, smooth-running, high speed, small pulleys, shock absorption, infrequent take-up and oil resistance are encountered. Light enough to operate at speeds in excess of 10,000 F.P.M., and thin enough to operate over pulleys as small as ¼" in diameter.

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PRICES

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PAPER AND BOARD

Standard News, Delivered Parts

Rolls, contract, per ton	$105.00/116.00
Sheets	118.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.

Standard Wrapping Rolls	$7.75/ —
No. 1 Wrapping Rolls	8.25/ 8.50
Standard Bag	7.50/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$1.95 /$2.25
Wh. No. 1 MG	2.10 / 2.40
Wh. No. 1½	1.85 / 2.15
Wh. No. 2	1.85 / 2.15
Kraft Anti-Tar 20x30	1.85 / 2.15
White Anti-Tar 20x30	1.95 / —

Toilet— per case of 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5	6.60/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.85/ —
Per Case of 50 rolls—3000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x5, 2-ply	$8.95/10.65

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9½x9½	$5.75
Br. Sr. M'tif'd 9½x12	4.10
Br. Jr. M'tif'd 9½x9½	3.60
Br. Jr. Sgl. fold 9½x10¾	3.65
Bleached 7½x11, 24/25 rolls	$7.00/7.35

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets*	$19.35/21.35
Reg. Jute M.F. 40-lb., sheets*	18.00/20.00
Wrapping Manila	8.75/10.50
Printing Manila	10.50/13.00

* Less usual allowance for rolls.

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 900 ft. GSI	8.28 / —
35-lb. 500 ft. GSO	6.21 / —

MARKET WOOD PULP

Third Quarter Contract Prices, Per Short Air-Dry Ton

	Varying freight allowances		On Dock Atlantic Ports		
	*U. S.	Canadian	*Swedish	*Finnish	*Norwegian
Groundwood	$92.50/ —	‡$95.00/100.00			
Sulfate, Bleached	145.00/ —	190.00/200.00	$230.00/ —	$230.00/ —	$230.00/ —
Semi-bleached Sulfate	140.00/ —				
Sulfate, Unbl.	132.50/ —	145.00/175.00	200.00/ —	200.00/ —	
Sulfite, Blchd.	140.00/ —	160.00/175.00	225.00/ —	225.00/ —	225.00/ —
Sulfite, Unblchd.	132.50/ —	150.00/160.00	200.00/ —	200.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —			
Soda, Blchd.	140.00/ —	155.00/160.00			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwood Screenings	60.00/ —				
Unblchd Sulfate Sideruns	132.50/ —				
Stand. News. Sideruns	92.50/ —	106.00 —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

Boards, per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Blchd. Mla. L-L. Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Cms.
	per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Cms.
	per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Cms.
	per cwt.
Watermarked	$19.00/$20.50
Plain	18.05/ 19.50

Ledgers	4 Cms.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.40/$24.65
No. 2	21.90/ 23.40
No. 3	20.40/ 22.40
Machine Coated	
No. 1	$18.15/$18.40
No. 2	16.15/ 16.65
Uncoated	
No. 1 Antique (Watermarked)	$18.65/$19.15
Offset	17.40/ 18.90
A Grade K. F.	17.40/ 18.15
A Grade S. C.	16.15/ 18.65
B Grade E. F.	17.65/ —
B Grade S. C.	16.90/ 18.40

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.)

	New York	Philadelphia	Boston	Chicago
	June 6	June 7	June 16	June 1
No. 1 Mixed Paper	$18.00/ 24.00	$21.00/ 24.00	$19.00/ 21.00	$20.00/ —
Boxboard Cuts	19.00/ 25.00	21.00/ 24.00	26.00/ —	25.00/ —
Mill Wrappers	19.00/ 36.00	25.00/ 30.00	22.00/ 30.00	22.00/ —
No. 1 News	22.00/ 25.00	22.00/ 25.00	— /22.00	22.00/ —
Over-issue News	28.00/ 35.00	30.00/ 35.00	22.00/ 24.00	25.00/ —
Corrugated Containers	64.00/ 68.00	58.00/ 63.00	64.50/ 66.00	52.00/ —
New Corrugated Cuts	Nominal	60.00/ 65.00	55.00/ 65.00	62.00/ —
Double Kraft Ld. Corr. Cuts .*	115.00/120.00	105.00/120.00	120.00/140.00	120.00/ —
100% Kraft Corr. Cuts .*	140.00/165.00	125.00/135.00	130.00/170.00	140.00/ —
Used Kraft Bags .*	85.00/105.00	80.00/ 85.00	85.00/116.50	65.00/ —
No. 1 Brown Kraft Paper	70.00/ 75.00	90.00/ 95.00	98.00/110.00	65.00/ —
Super Reserted Br. Kraft .*	100.00/105.00	100.00/105.00	100.00/125.00	90.00/ —
New Br. Kraft Env. Cuts .*	160.00/180.00	160.00/175.00	160.00/180.00	150.00/ —
New Br. Kraft Cuts .*	150.00/175.00	130.00/140.00	150.00/180.00	140.00/ —
No. 1 Gdwd Shvs.	65.00/ 70.00	50.00/ 65.00	75.00/ 85.00	55.00/ —
White Newsblanks	100.00/110.00	80.00/ 90.00	90.00/100.00	80.00/ —
No. 1 Flyleaf Shvs. .*	80.00/120.00	80.00/ 85.00	95.00/110.00	100.00/ —
No. 1 Soft Wht. Shvs. .*	160.00/190.00	170.00/175.00	175.00/195.00	175.00/ —
Super Soft Wht. Shvs. .*	190.00/200.00	190.00/200.00	190.00/210.00	185.00/ —
Hd. Wht. Shvs. .*	185.00/210.00	190.00/215.00	190.00/215.00	180.00/ —
Hd. Wht. Env. Cuts .*	200.00/245.00	200.00/225.00	200.00/235.00	190.00/ —
New Manila Env. Cuts .*	140.00/150.00	160.00/165.00	140.00/165.00	115.00/ —
Col. Tab Cards .*	110.00/120.00	115.00/120.00	95.00/150.00	100.00/ —
Manila Tab Cards .*	170.00/185.00	165.00/190.00	160.00/200.00	165.00/ —
No. 1 Mixed Ledger .*	95.00/105.00	100.00/105.00	87.00/110.00	100.00/ —
White Ledger .*	130.00/140.00	125.00/130.00	125.00/140.00	125.00/ —
No. 1 Book & Mag.†	41.00/ 45.00	35.00/ 40.00	40.00/ 60.00	25.00/ —
No. 1 Rep'd. Hvy. Books‡	50.00/ 55.00	50.00/ 60.00	60.00/ 75.00	50.00/ —

* OCPR Ceiling. † Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unblchd. Muslins	21.00
Blchd. & Unblchd. Underwears	21.00
Blchd. Canton Flannels	21.00
No. 1 Light Silesias	16.50
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

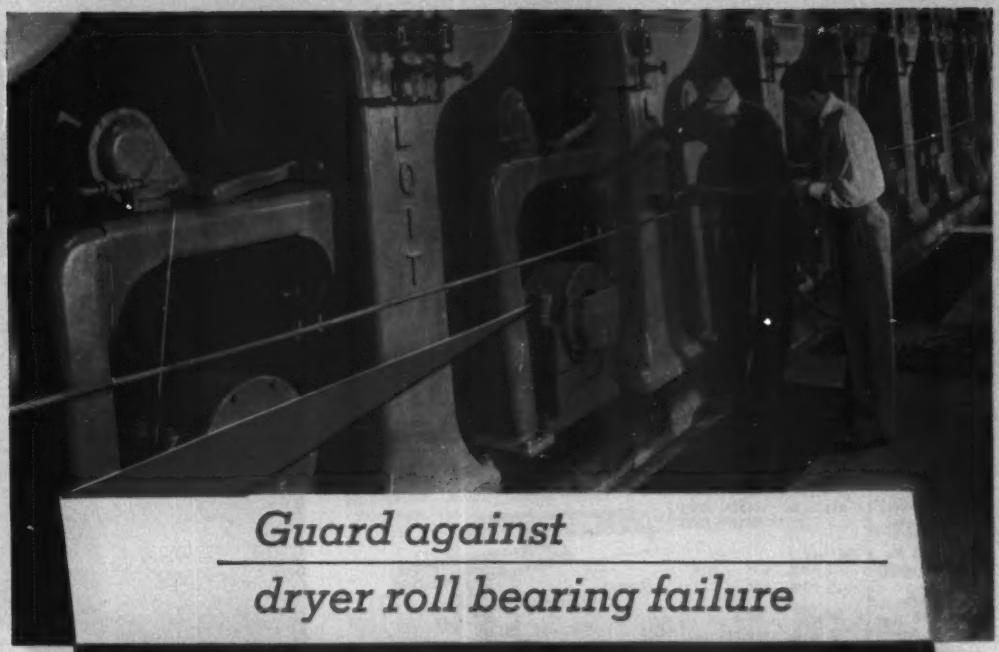
Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, f.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.25/ 5.00
Thirds and Blues, Repacked	3.75/ 4.00
No. 1 Roofing Rags	2.70/ 2.90
No. 2 Roofing Rags	2.00/ 2.10
No. 3 & 4 Roofing Rags	1.90/ 2.00
Roofing Bagging	1.90/ 2.00

Bagging
(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$6.00/ 6.50
Domestic Gunny, No. 1	6.00/ 6.50
Heavy Wool Tares	8.00/ 8.25
Foreign Manila Rope	8.50/ 8.75
Domestic Manila Rope	9.00/ 9.25
Jute Strings	6.00/ 6.50
No. 1 Sisal Strings	8.00/ 8.25
Paper Mill Tares	5.25/ 5.75
Foreign Scrap Burlap	5.00/ 5.25
Domestic Scrap Burlap	6.50/ 7.00
Austr. Wool Pouches	7.50/ 8.00
New Burlap Cuttings	7.50/ 8.00



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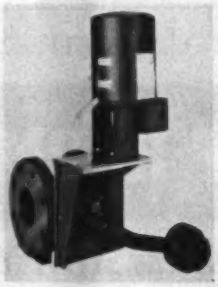
MATERIALS

Aluminum, sulfate:			
comm. bags, wks.	cwt.	1.65	
iron-free c.l.		3.25	
Alcohol, ethyl.			
tax free, dms. c.l.	gal.	1.01	/ 1.05½
dehd. Ener Miss.			
Alcohol, methyl:			
Synthetic, Zone 1, dms.			
c.l. fit. alld.	gal.	.44	
Casein, acid-prec.:			
dom. sh. pt. c.l.	lb.	.39	/ .41½
imp. ex. dock	lb.	.29	/ .40
Caustic soda:			
c.l. wks. solid, 76%, cwt.		3.35	
flak. & grd. 100-lb. drums		3.75	
liquid 50% tanks		2.55	
liquid 70% tanks		2.65	
China clay:			
dom. air-float. filler, c.l. wks.	ton	10.00	
water-washed, lump, filler		11.00	
coating		17.60	/30.50
imported, ex whse.	short ton	15.20	/28.35
Chlorine:			
single-unit tanks, works	cwt.	2.70	
multi-unit	cwt.	3.20	/ 4.40
Formaldehyde:			
USP, ink. dms, c.l. wks.	lb.	.0625/	.0675
l.c.l., E. wks.		.0675/	.0725
Fuel oil:			
Bunker C, No. 6 Cal. bry			
tanks, refinery	bbl.	1.95	/ 2.15
light	bbl.	2.00	/ 2.25
Hydrogen peroxide:			
USP, 35% chys. E. of Miss.			
Lime:	lb.	.23½/	.26½
hydrated, bags, wks.	ton	13.50	
Rosin:			
B gum, drms, c.l. Savan.	cwt.	8.00	/ 9.08*
G, H, I, K	cwt.	9.16	/ 9.49*
FF, wood, dc.	cwt.	7.30	/ —
* OPS Ceiling, CPR 52.			
Rosin size:			
70%, gum & pale grds, tank			
cars, south, sh. pt.	cwt.	7.45	/ 7.60
Salt cake:			
dom. bulk, c.l. wks.	ton	17.00	
wks. frt. all.	ton	20.00	/22.00
Soda ash:			
light, 58%, bags, wks.		1.50	
bulk	cwt.	1.20	
Sodium silicate 40°:			
turbid. c.l. wks.	cwt.	1.30	/
l.c.l. wks.		1.60	/ 1.80
Sodium peroxide:			
dms. c.l. E. of Miss.	lb.	.21	
l.c.l. do.	lb.	.21½/	.22
Soybean, protein:			
chem. ind, wks. c.l.	lb.	.24	/ —
Cinn. and Chic.			
Sulfuric acid:			
60° Be. chys. c.l. wks.	cwt.	1.75	/ —
l.c.l. wks.	cwt.	2.05	/ 2.85
Sulfur:			
crude, c.l. mines, contract,	long ton	21.00	/22.00
f.o.b vessels Gulf		22.50	/23.50
Sulfur dioxide:			
liquid, comm. cyl. wks.	lb.	.09	
multi-unit cars	lb.	.0535	
Starches:			
pearl corn, bags, c.l. wks.	cwt.	6.02	/ —
white dextrines, c.l. wks.	cwt.	7.41	/ —
potato, Idaho, c.l. wks.	cwt.	5.50	/ —
potato, Maine, c.l. wks.	cwt.	5.75	/ —
tapioca, conv. dextrines	cwt.	7.75	/ 8.50
low, Siam, on dock N. Y.		5.75	/ 6.00
Talc:		nominal	
domestic, 50-lb. sacks, c.l. wks.	ton	25.00	/30.00
Titanium dioxide:			
anastase, c.l. dehd., bags	lb.	.21	/ .21½
l.c.l. dehd.	lb.	.22	/ .22½
rutile, c.l. dehd.	lb.	.23	/ .23½
l.c.l. dehd.	lb.	.24	/ .24½

NEW EQUIPMENT

Rubber Lined Emergency Valve

A rubber-seated valve, heavy-duty cast-iron was designed for emergency gas or liquid shut off service. With the



angular seating vane for wedge type closure, the rubber is compressed around the periphery of the vane to give positive shut-off even around the shaft bosses. This type of construction makes it possible to use an iron-body valve in service that would normally call for stainless steel or other alloy, it is said. The rubber flanges take the place of the usual flange gaskets.

Valve is completely cycled and operated by a directly connected motor driven pump, sealed in oil. Hydraulic pressure raises the counter-weight for the open position. When valve is fully open, operating motor is cut off by integral switch. While the operator-unit is energized, current consumption drops to a minimum. Should current fail, the oil operator is released, the counter-weight drops and the valve is closed. Valve action can be reversed.

38" Knife Grinder

A new 38" capacity knife grinder for grinding and conditioning all types of straight knives is announced. Designed to give outstanding performance at low

cost, the new unit features a mechanical transmission which is totally enclosed and protected from dirt and foreign material. A hardened and ground steel worm gear with bronze worm wheel mounted in ball bearings are employed. Rigidly mounted in ball bearings, transmission drive is through a vertical shaft. The motor which drives both grinding wheel and transmission is also of the ball bearing type. Featured also is the automatic table infeed with adjustment from .0005 increments and up. All mechanism is fully protected from grit, dirt and vapor to insure maximum machine life and accuracy. The rigidly constructed cabinet base of fabricated steel as designed to assure smooth operation and accuracy.

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Saf-Powr-Bar

Saf-Powr-Bar is a new type of electrification for overhead cranes and tramrail systems specially designed to provide maximum safety.

The improvement consists of inverted U-shaped conductor bars inside of which operate sliding current collector shoes. Shocks and more serious injuries from contact with power bars are said to be prevented by the insulating plastic covering of the bar.

Sliding current collector shoes contact three sides of the bar and operate on a pantographic principle. A diagonal spring provides upward pressure on the graphiter shoe while a torsion spring within a plastic housing causes pressure to be applied on both sides of the conductor bar. The slider shoe is made of special graphite which possesses lubricating properties, giving it long life and minimizing wear on the bar.

Wood Waste Stoker

The new stoker utilizes sawdust, wood chips, hogged wood and other wood wastes as fuel. Designated Fyr-Feeder Automatic Multi-Burner Combustion System, it burns efficiently

hitherto unused coal and wood wastes with but a few modifications in the average furnace, it is claimed. The system is said to maintain a constant steam pressure at negligible fuel costs.

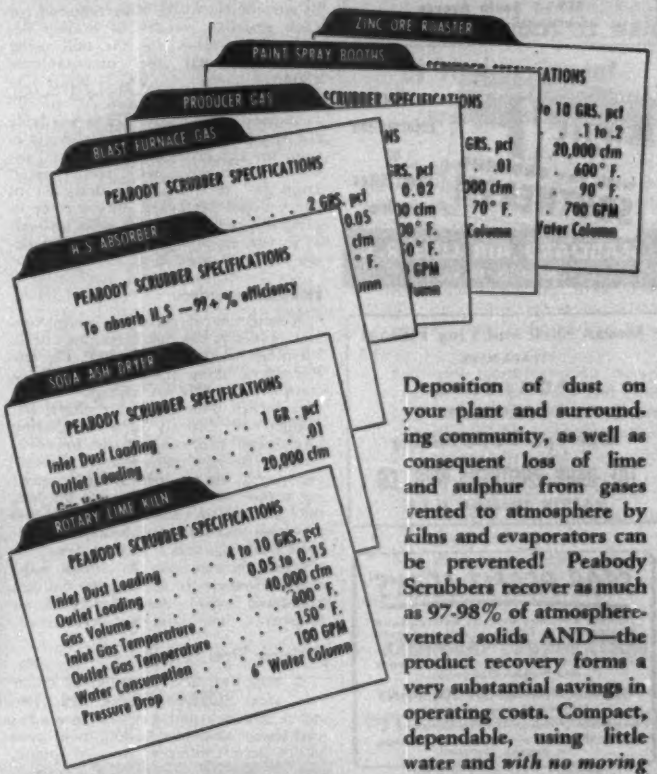
Circular Saw Sharpener

The new Circular Saw Sharpener employs air power in the shift mechanism of its grinding head. Elimination of more than 25 parts through this advancement in design has resulted in smoother operation and reduction of wear on moving parts to an absolute minimum, it is stated.

Increased accuracy and simplification of the grinding operation, as well

reduce chemical losses with

PEABODY SCRUBBERS



Deposition of dust on your plant and surrounding community, as well as consequent loss of lime and sulphur from gases vented to atmosphere by kilns and evaporators can be prevented! Peabody Scrubbers recover as much as 97-98% of atmosphere-vented solids AND—the product recovery forms a very substantial savings in operating costs. Compact, dependable, using little water and *with no moving parts*, Peabody Scrubbers, proved by 20 years of use, may well offer startling economies and cleaner processing for your plant.

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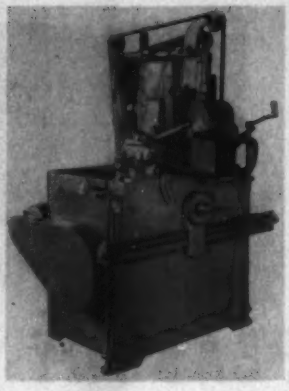
WEIGHING while conveying with the WEIGHTOMETER
Wood Chips, Salt Cake, Sulphur, Coal, Etc.
MERRICK SCALE MFG. CO.
PASSAIC, NEW JERSEY



as curtailment of the time required for each grinding, results in greatly decreased downtime for the mill using this equipment, the manufacturer claims.

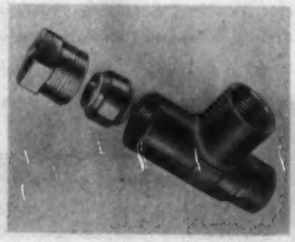
Precision-built for saws 20" to 72" in diameter, the Model 772 is available for larger saws on special order. It is used for rip, crosscut, slasher, and inserted tooth saws with teeth spaced from ¾" to 3", and is designed in every detail for heavy duty service in sawmills, pulp and paper mills, as well as in veneer, plywood, and woodworking mills of every kind.

Electric Recorders

A new line of recording voltmeters and ammeters has just been announced. Identified as the "Series 500" Electric Recorders, these instruments make a continuous record of voltage or current on an 8-inch circular chart, but feature an entirely new measuring mechanism and other basic improvements. The new moving-iron measuring mechanism produces a high actuating torque at a low electrical burden; the mechanism has shock-protected precision stainless steel bearings, magnetic damping, and a locking device to prevent damage due to rough handling. Housing is a compact die-cast aluminum alloy case described as moisture-, fume-, and dust-proof.

Stainless Steel Fittings

A complete, new selection of stainless steel tube fittings designed to meet unusual piping conditions, has just been announced. The new couplings permit different sizes of tubing,



or tube-pipe combinations to be joined in a single fitting. A feature designed to eliminate the need for supplementary reducing couplings at which line leaks might occur. In addition, installation costs are held to a minimum because one fitting does the work of two or three, it is said. Any combination through 1" is available. Illustrated is a Koncentrik tee equipped with a 1" tube, a 1" female pipe and a ¾" male pipe connection.

Constant Delivery Pumps

Simplification and compactness are featured in three new heavy-duty Type "HG" axial rolling piston pumps built for pressures up to 3000 and 5000 p.s.i. of the fixed-stroke type. They operate quietly at speeds up to 1800 r.p.m. Coupled with pressure and flood lubrication by the high grade oil in the system, they set new standards of service and endurance for pressures up to 3000 and 5000 p.s.i., it is stated. Especially suitable for heavy-duty pushing, pulling, lifting and lowering applications, for maintaining high static loads on large clamping rams and the like.

NEW PAPER USES

Twisted Crepe Tissue Cord

The Fox Edge Co., Inc., Lowell, Mass., has developed a new welting and seaming cord which supplements the company's present line of converted paper products and upholstering supplies which are distributed largely through paper jobbers.

Foxtissue, the new product, is made of soft crepe tissue which makes the cord extremely flexible and resilient. In addition, the use of this crepe tissue renders Foxtissue more economical than conventional paper cords due to the increased yield per pound.

ASSOCIATIONS

PAPER & TWINE ASSN. MEETS

Annual Meeting of the Paper and Twine Assn. was held June 22-23 at French Lick Springs, Ind. A total of 288 were present.

During the morning session on Friday, the 22nd, the principal speaker was Clinton K. Royce, head of the Packaging Section, Office of Navy Material, who spoke on "Impact of Defense Requirements." The International Paper Co. showed a new sound film in color entitled "In Partnership with Nature." The President and Secretary made their Annual Reports and reported a total membership of 517. At the annual election, Martin D. Schwartz, of the Schwartz Paper Co., Muncie, Ind., was elected President. Frank Roche of the Lily Tulip Cup Corp., New York was elected Vice-President, and John L. Richey, Secretary-Treasurer. On Friday evening an excellent musical show was given. On Friday afternoon and Saturday after-

noon a golf tournament was staged and on Saturday evening at dinner a number of handsome prizes were given out for golf and as door prizes. The handsome trophy was won by Morris Norian of Industrial Container Corp., Chicago. Before the awarding of the prizes, newly elected Martin Schwartz presented a handsome set of matched leather luggage to Joseph S. Druth, chairman of the Tournament Committee in appreciation of the many hard years of work that he has contributed to the success of the meetings.

MAINE-N. H. TAPPI

George A. Day, Brown Co., Berlin, N.H. was elected chairman of the Maine-N.H. Section of Tappi at their semi-annual meeting held June 22 and 23 in Eastern Slope Inn, North Conway, N.H. Joseph J. Thomas, S. D. Warren Co., Westbrook was elected vice-chairman; H. E. Pratt of Pejepscot Paper Co., Brunswick, secretary-treasurer. Executive committee members are O. E. Anderson of International Paper, Chisholm; Arthur E. Jones, Oxford Paper, Rumford; J. F. Wright, National Aniline Div., Allied Chemcal and Dye Corp., Boston; Warren Daniell, Great Northern, Millinocket; Theodore Kloss, Hollingsworth & Whitney, Waterville; Henry Hooper, Penobscott Chemical Fiber, Old Town; F. A. Strovink, American Cyanamid & Chemical Co., Boston; John B. Calkin, University of Maine, Orono, and W. A. Hinds of Keyes Fibre Co., Waterville.

This was one of the largest meetings of the organization with 165 registered. It was considered a success, with much information and discussion on the utilization of hard wood to make wood pulp, both in New England and Northern New York, in keeping with the topic of the meeting "Semi-Chemical Pulping." J. N. McGovern, Forest Products Laboratory was the outstanding speaker of the Friday afternoon session.

Joseph J. Thomas, research department of S. D. Warren Co., Westbrook conducted a panel discussion on Saturday morning, at which time much information was given through a question and answer period, with J. N. McGovern, Forest Products Laboratory, again distinguishing himself. W. A. Kraske of Solvay Process Co. gave an informative and interesting talk on how semi-chemical pulp is bleached, pointing out the importance of the recovery of the liquor in which it is cooked, in light of stream pollution, lowering cost, and beating the chemical shortage of sulphur.

Other speakers on Friday's program included R. M. Jones and T. E. Detcher, Barrett Division who spoke on Ammonia Base in the neutral sulfite semi-chemical pulping process; and three formal talks given by C. K. Texter, Bauer Bros. Co. on Semi-chemical pulp production with revolving disc mills; T. Agronin of Shartle Bros. Machine Co. on the Development of a system for neutral sulfite pulping; and T. W. Small of Sprout-Waldron Co. on Semi-chemical pulping with single rotary disc.

The next meeting is scheduled for October in Orono.

SUPPLIERS

SOUTHERN ALKALI CORP., a wholly-owned subsidiary of Pittsburgh Plate Glass Co., has appointed William J. Muller export manager.

Mr. Muller was treasurer of the U. S. Alkali Export Assn., Inc., prior to joining Southern Alkali. His headquarters will be located at 30 Rockefeller Plaza, New York 20, N. Y.

TEXAS GULF SULPHUR CO., the world's largest sulphur producer, has elected Walter H. Aldridge chairman of the board, Fred M. Nelson has been elected president of the company, and Thomas S. Lamont has been elected chairman of a newly-formed executive committee. Other members of the executive committee are Erle V. Daveler and Lowell C. Wadmond.

QUAKER RUBBER CORP., Division of H. K. Porter Co., Inc., has begun a quarter million dollar expansion of its hose manufacturing facilities to produce high pressure wire braided hose for the United States Air Force.

Any surplus production of the high pressure wire braided hose will be

HEAD TABLE MAINE-N. H. TAPPI MEET

Left to Right—John L. Parsons, Theodore Kloss, Henry J. Perry, H. E. Pratt, George A. Day, A. E. Bachmann, Warren Daniell, R. G. Macdonald, J. J. Thomas and Lyle C. Jenness.

CORROSION CRIPPLES-MORE WAYS THAN ONE

Valuable products as well as vital equipment are threatened

Corrosion takes its toll in more ways than one—it eats away costly, hard-to-get equipment—wastes man-hours while plants are shut down for repairs—and causes loss of vitally-needed products through contamination.

Every industry suffers from corrosion in some form, yet much of this waste can be avoided by taking these steps:

1. Check manufacturing equipment, storage tanks, and other items exposed to corrosive fumes, acids, alkalies, or moisture.
2. Arrange to protect them with AMERCOAT—the corrosion resistant coatings, each built to conquer specific industrial corrosion problems.

Manufacturers in nearly every industry have found that it pays to protect—protect with AMERCOAT.

AMERCOAT CORPORATION

A division of
American Pipe and Construction Co.

4809 Firestone Blvd., South Gate, Calif.

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COTTON PULP
Limited Tonnage Available
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ALPHA CELLULOSE CORPORATION
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THE CARTHAGE MACHINE COMPANY
CARTHAGE, NEW YORK
Manufacturer of
Machinery and equipment for Mechanical and Chemical Pulp Mills and Special Machinery

INTERNATIONAL WIRE WORKS
Fourdrinier Wires
MENASHA, WISCONSIN

FIBER RESEARCH AND SERVICE
Semi-Chem. and Chemical Pulp Processes
Pilot Plant Facilities
THE KINSLEY CHEMICAL COMPANY
Cleveland 11, Ohio

MISCO
STAINLESS STEEL CASTINGS
FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	May 26	June 2	June 9	June 16	June 23
1951	101.8	100.1	104.1	101.5r	98.8
	May 27	**June 3**	**June 10**	**June 17**	**June 24**
1950	97.3	97.6	96.4	97.3	99.3

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	95.4	96.4	97.7	83.3	99.6	96.1	101.0	99.6	91.2	95.8
1951	99.3	101.3	102.3‡	103.1‡	102.5‡								

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	88.6	88.9	100.4	105.3	100.0	87.6	95.7	101.7
Year Average	88.1	89.4	100.1	104.3	96.2	88.6	95.8	

PAPERBOARD OPERATING RATIOS†

	May 26	June 2	June 9	June 16	June 23
1951	102	100	102	103	103
	May 27	**June 3**	**June 10**	**June 17**	**June 24**
1950	93	83	93	93	94

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	82	100	96	102	101	95	94
1951	102	105	104	105	104								

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1951 the ratio is shown on the new basis of normal 6- and 7-day capacities. Corresponding weekly and monthly ratios for 1950 on the new basis, shown in the tables above, are somewhat lower.

Paperboard operating ratios continue on the basis of a 6-day week.

† Per cents of operation based on "inch-hours" reported to the National Paperboard Association.

made available to manufacturers of earth moving equipment, farm tractors, road building equipment and similar heavy equipment where high pressure hydraulic controls are used.

GLIDDEN CO. will spend $700,000 immediately to expand its production of Alpha Protein, a soybean derivative which is used for making fiber boxes weatherproof.

The new plant facilities will be an addition to the company's Soya Products Division plant in Chicago. The expansion will enable the company to increase its Alpha Protein output 40 per cent.

GENERAL ELECTRIC has appointed Arthur F. Vinson manager of employe and community relations of its Small Apparatus Divisions with headquarters at Lynn, Mass.

OBITUARIES

Lockwood Chappell Barr, 37, manager of the New York City sales office of the Ohio Boxboard Co., died June 25 at Rowayton, Conn.

John N. Bergstrom, 77, Neenah, Wis., died June 19. He was one of the founders of the Bergstrom Paper Mill, and retired as president in 1949 because of ill health.

F. Paul Birk, 49, paper mill engineer of 64 West Randolph Street, Chicago, Ill., died suddenly of cerebral hemorrhage, June 19. He was associated for many years with the late James L. Carey, paper mill engineer of Chicago. He operated his own business since 1947.

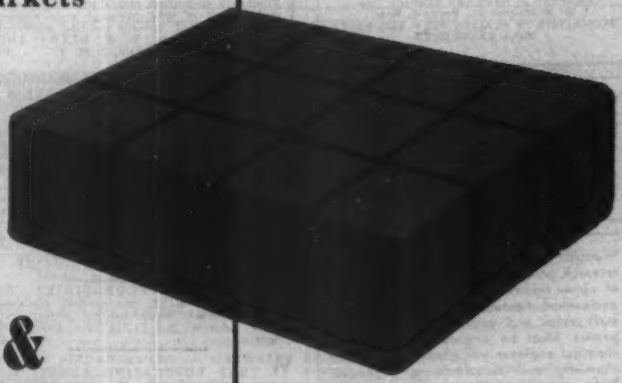
Ernest Charles Martin, former paper firm executive, died June 22 at his home in Toronto, Ont. He at one time served as divisional manager of the Scott Paper Co. in the United States and later returned to Toronto as general sales manager of Interlake Tissue Mills. He then became vice-president and a director of the Saranac Pulp & Paper Co. in the United States. In later years he returned to Canada.

Deacon R. Taylor, 92, retired vice-president of the Moore & White Co., a Philadelphia papermaking machinery company, died at his home June 26 in Elkins Park, Pa. Mr. Taylor joined the firm in 1886 and continued with it until two years ago, when he resigned as a director.

Gove S. Taylor, an executive in the paper-container industry, died June 26 at White Plains, N. Y. Mr. Taylor had worked for many years for the Mono Service Co., Newark, N. J. When the concern was absorbed by the Continental Can Co., he joined Continental, remaining until retirement ten years ago.

Lyddon & Co.

exporters of wood pulp
to all world markets



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paper exporters
wood pulp

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10 East 40th Street, New York 16, N. Y.

CLEARING HOUSE

HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—assistant to president of paper converting firm specializing in facial and sanitary tissues, splendid salary; supervisors for power depts. (2); plant engineer salary $7500-$10,000.

Chemical engineer for group leader, $6,000-$8,000 year, also chemists and chemical engineers for other positions; sulphite mill foreman familiar with sulphite cooking and acid making; head beater engineer; machine tenders and back tenders. General foreman paper converting plant on tissue, towels, bags, etc.; Fourdrinier or Yankee machine tour foreman; kraft house foreman.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES

J-6

WANTED—Research chemist, interested in exploration of the development and substitution of synthetic materials for natural cellulosic products. Fine opportunity for the right man to engage in long term development project. Location in New York State. Send complete resume of industrial training and education with letter of application to Box 51-343 care Paper Trade Journal. S-28

Wanted: Supervisor for pulp and paper research group of 6 to 8 men in laboratory of upper midwest mfgr. of bleached and unbleached groundwood, sulphite and kraft pulps and printing and converting papers. Must be a graduate chemist or chemical engineer well grounded in paper chemistry and manufacturing processes. Prefer man 35 to 45 years old with both production and development exp. in above fields and a combination of a creative imagination with a practical approach to development problems. Paper coating exp. desirable. In reply give personal history, training, exp. and salary expected. Address Box 51-335 care Paper Trade Journal. J-13

AGGRESSIVE SALES ENGINEER

Opportunity to join well known established machinery firm. Technical ability and paper making background necessary. Knowledge of beating and pulping process and equipment desirable. Some sales experience or sales inclination helpful. Must be able to travel in territory. Tell us about yourself in your letter. Address Box 51-301 care Paper Trade Journal. TF

PLANT ENGINEER—Bldg. Materials and Plastic Floor-covering Manufacturer, new large-scale New Jersey plant. Applicants must have minimum 8 years plant experience in maintenance, operations and design. Must be familiar with wide variety of process plant equipment and utilities systems. Must be college graduate engineer. Please submit resume with reply. Box No. 51-290, care Paper Trade Journal. A-3

CHEMIST OR CHEMICAL ENGINEER: One of the leading chemical companies desires chemist or chemical engineer to do laboratory research on end uses for new products developed in existing research department. At least 3 years experience essential in use or users of following products: waxes, paper coatings, polyethylenes and other plastics. Permanent position, good salary, liberal employment benefits. Give complete information in letter. Replies confidential. Address Box 51-322 care Paper Trade Journal. J-22

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

PROJECT ENGINEER—CALIFORNIA. 5 years experience. Processes and machinery for manufacture of floor coverings, wallboards, insulations, building materials. Permanent position. Salary open. Moving expenses allowance. PABCO PRODUCTS INC., 1350 Powell Street, Emeryville, California. Jy-13

WANTED — Machine Tenders and Back Tenders for corrugating medium and liner mill. Fourdinier and cylinder machines. Located in Western Pennsylvania; good working conditions; pleasant surroundings and very good labor relations. Call collect—Tarentum 1470. TARENTUM PRODUCTS CORPORATION, Tarentum, Pa. TF

MID-WESTERN FOURDRINIER SPECIALTY MILL has opening for experienced Production Superintendent. References required. Address Box 51-278 care Paper Trade Journal. A-31

WANTED — EXPERIENCED, COMPETENT PURCHASING AGENT for an eastern chipboard mill. Must be capable and fully experienced. Furnish details of experience capabilities and references. Excellent opportunity. Address Box 51-153 care Paper Trade Journal. TF

WANTED — TOP GRADE SALESMANAGER for an eastern chipboard mill. Fully experienced and capable. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-78 care Paper Trade Journal. TF

MACHINE TENDERS WANTED by Fine Paper Mill in Eastern New York State. Address Box 51-328 care Paper Trade Journal. J-6

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal. TF

WANTED — Experienced Trimmer Man for Sheridan Cutter for Paper Mill near New York City. Address Box 51-332 care Paper Trade Journal. J-6

WANTED — A National concern operating many paper mills requires the services of a technically trained paper production man. He should have a broad experience in all phases of multi-cylinder operation. He would function as a Production Engineer and general "trouble shooter" in all company mills. Salary will fit the man. Address Box 51-341 care Paper Trade Journal. J-6

HELP WANTED

WANTED — Technical Service Director for long established Mid-western integrated Kraft mill manufacturing Kraft and specialties. Experience necessary. Qualified party will supervise control of paper and pulp mills. Excellent laboratories and working conditions. Applicant should submit complete qualifications. Write Box 51-344 care Paper Trade Journal. J-20

SALESMAN to sell Chip Corrugating Medium to corrugating board manufacturers. Must be thoroughly experienced and have established following. Substantial salary and commission. Address Box 51-340 care Paper Trade Journal. J-13

SITUATIONS WANTED

SMALL MILL RESEARCH

Specialty paper engineer will develop new or improved products for small mill on royalty basis. Successful sales and production experience. Laboratory equipment supplied. Write Box 51-290 c/o Paper Trade Journal. J-6

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-63 care Paper Trade Journal. J-27

MANAGER or GENERAL SUPERINTENDENT—B.S. Degree, twenty four years in supervisory capacity manufacturing fine papers and specialties. Highly successful in organization, labor relations, maintenance, installation. Maximum production and quality at minimum cost. Motto—"It can be done." Excellent references. Address Box 51-313 care Paper Trade Journal. J-6

EXECUTIVE COST ACCOUNTANT—Age 37. Can set up budgets and standard cost system for paper mill or convertor. Full knowledge of inventory control and plant asset records. Address Box 51-333 care Paper Trade Journal. J-6

CHEMICAL ENGINEER—31, with good technical and commercial background available. Presently superintendent of stock preparation at midwestern kraft and sulphite specialty mill, in charge of both beating and bleaching. 10 years experience in selling and making various kinds and grades of paper. Member of SAPI. Resume and references available. Address Box 51-331 care Paper Trade Journal. J-13

BEATER ENGINEER wants position. Married, temperate habits. Accustomed to all grades. Can take full charge of beater room. Address Box 51-330 care Paper Trade Journal. J-13

FOR SALE

FOR SALE—1—Valley Iron Works Stock Inlet. Used with 133 inch wire making 10 pound to 40 pound paper. From 350 to 600 feet per minute. Print will be furnished interested parties. DUNN PAPER CO., Port Huron, Mich. J-13

FOR SALE—1—122" Heavy Duty Single Knife Horne Cutter, suitable for Board or Pulp. Address Box 51-273 care Paper Trade Journal. TF

RATES FOR CLEARING HOUSE ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $3.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $3.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $3.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $3.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $3.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 18, N. Y.

FOR SALE

When looking for sale of your machines and products for the paper and cellulose industry on these markets, please contact

IMEX S.A.

Rambla Universidad 12
Barcelona J-6

FOR SALE—45" Seybold Paper Cutter; 36" Slitter & Rewinder, 48" Sheeter with Layboy; 29 x 40 Thomson Platen Die Cutter; 6" Brightwood Box Machine. Address Box 51-217 care Paper Trade Journal. TF

FOR SALE

FOR SALE

REBUILT ELECTRICAL MACHINERY

AC MOTORS (3 ph. 60 cy.)

HP	Make	Volts	Rpm	Type
450	G.E.	S.C.	450	MT
400	G.E.	S.C.	450	MT
250	G.E.	S.C.	450	I M
150	G.E.	S.C.	900	1K
125	West.	Syn.	277	
125	West.	Syn.	277	I M
100	G.E.	S.R.	450	ARX
100	Al.Ch.	S.C.	720	
100	West.	Syn.	900	
100	West.	S.C.	1200	CS
75	West.	S.C.	1800	CS
75	G.E.	S.L.	575	1TC
50	West.	S.C.	1750	CS
4-50	G.E.	S.C.	1750	KT
40	G.E.	S.R.	900	MT
30	Vert. G.E.	S.C.	1150	KTX5B
20	900 v. West.	S.C.	1750	CS5B
20	Gr.Wt.	S.C.	900	
20	West.	S.C.	1750	CS
15	West.	S.C.	1800	CS
10	Al. Ch. (new)	S.C. (Hi-Torq)	1800	ARWH
50	West.	S.C.	1750	CS

HP	Make	Volts	Rpm.	Type
10	West.	S.C.	570	CS5B5C
10(D)	Al.Ch.	S.C.	575	ARY
10	West.	S.C.	1200	CS5B7C
7½(D)	Al.Ch.	S.L.	570	ARY
7½	G.E.	S.C.	1200	KT
7½	West.	S.C.	1440	CS5B4Y
5	West.	S.C.	1200	CS
4-1½	G.A.	S.C.	580/1160	2SB5
1	Reliance	S.C.	1150/575	PA
1	Burke	S.C.	450	EM2
1	West.	S.C.	1725	
1	220v. West.	S.C.	1750	CS5B4

TRANSFORMERS

KVA	MAKE	PRI.	SEC.
1—3000 (3 PH)	G.E.	23000	23000
1—1500	West.	23000	2300
1—1000	West.	23000	2300
1—300	Al.Ch.	23000	2300
1—50	West.	2300	110/220

Send us your inquiries for any POWER EQUIPMENT you may require

MOORHEAD ELECTRICAL MACHINERY CO.

OAKDALE, PA., Pittsburgh District — Pittsburgh Tele. WAlnut 1-4300 — M-4

MACHINERY WANTED FOR OUTRIGHT PURCHASE

Paper Machines, Pulp and Paper Mill Machinery and Converting Equipment.

BEATERS
3—Dilts 700 lb. Iron Tub. Roll 44" face x 60" diameter.
1—Downingtown 1000 lb. Iron Tub. New roll 48" face x 48" diameter.
1—Downingtown 1500 lb. Iron Tub with 75 HP. motor.

BELTING—NEW
57 feet 8" 13 ply Goodyear Rubber Belting.
135 feet 8" 4 ply Biher Bank Transmission belt.

CALENDER ROLLS
16 Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—5 roll—42".
1—5 roll—42". All rolls bored for steam.
1—Lobdell 6 roll 124" Calender Stack, with doctors and drives.
1—Farrel Birmingham 110" Calender Stack with doctors, 7 rolls bored for steam.
1—S-C 72" trim 9 roll with doctors, lavers and drives. 3 roll bored for steam.

COMBINING MACHINE
1—Black Clawson 84" Combining Machine with 4—48" diameter and 1—24" diameter Dryers. Motor, pumps, tanks, etc. Complete.

CONVEYERS
1—10½ ft. long x 30" wide—with motor.

CORE CUTTERS
1—Cameron with 2" x 11½" mandrels.

CYLINDER MOLDS
1—134" face x 88" diameter, with stainless steel shafts.

DRYERS
2—124" face x 48" diameter.
1—72" face x 48" diameter—with gear.
1—120" face x 10" diameter—Suby Dryer.
1—98" face x 36" diameter.
1—100" face x 48" diameter, with bearings.
2—100" face x 48" diameter—with gears and bearings.
5—110" face x 48" diameter with bearings and gears.
1—112" face x 48" diameter.
1—100" face x 42" diameter Creping Dryer.
6—42" face x 36" diameter, with trunnel, gears and bearings.
10—60" face x 49" diameter, with gears, bearings and steam joints.

EXTRACTOR ROLLS
1—Downingtown Extractor Roll 128" face x 24" diameter. Anti friction bearings.

FILTER PRESS
1—New Sperry Stitor press, size 12, type 41.

FILTERS
1—Oliver Vacuum Filters. Cylinder 10' face x 5'10" diameter. Steel vat. 1500 GPM capacity.
1—Oliver Vacuum Filter. Cylinder 6' face x 5' 6" diameter. Iron and vat.

FLAT SCREENS
3—6 plate Sandy Hill Roller Shoe with scrapers.
4—Harmon 12 plate.
1—Sandy Hill 12 plate roller shoe.
4—Bagley & Sewall 8 plate, with scrapers and plates.

JORDANS
1—26 Miami, for motor drive.
1—Jones Majestic with base and couplings—
1—22 Appleton with base and couplings.
1—Jones Majestic, Stainless Steel Fitting.

MOTORS
1—Allis Chalmers 30 h.p. 440 v. 880 r.p.m.
1—Allis Chalmers 30 h.p. 440 v. 880 r.p.m.
35 others 440 v. motors from 2 h.p. to 75 h.p.

PULP EQUIPMENT
1—Mills & Merritt 242 Pulpwood chipper.
1—Bird ball bearing Pulp Screen. Practically new. Used 6 months.
6—APMEW Ball Bearing Pulp Screens—90 ton capacity.

PULPERS
2—22 Lamneys.

PUMPS
64—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year. Also new Goulds Pumps.

REDUCERS
1—Link Belt 10 h.p. Ratio 3.3-1, 900 r.p.m.-227 r.p.m.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
1—22A Bird, fully rebuilt with new vats, plates, etc.—enclosed drive.
1—22 Bird—stainless steel vat.

SAVEALLS
1—Oliver, Vacuum type, cylinder 120" face x 90" diameter, with steel vat.

SCREW PRESSES
1—Valley Voith Screw Press Size 3.

SHEETERS
1—48" Kidder Cost Sheeter.
1—64" Dexter Differ with 10 roll Bank Stand.
1—Moore & White 91" with Erie Layboy and 10 roll backstand.

SHREDDERS
1—American 27" Hammermill, anti-friction bearings.
1—Jeffrey 28½" Knives—7 knife rotor—4 knife bed plate. Ball bearings.

SLITTERS AND WINDERS
1—Beloit 120" Paper Machine Slitter and Rewinder—22" rewind.
1—Hudson Sharp 90" Wax roll slitter and rewinder.
1—Langston 40" sheet cut with motor and 20 sets of slitters.

STEAM TURBINES
1—De Laval 225 h.p. initial pressure 140 p.s.i. Exhaust pressure 20 p.s.i. Complete with gear reducer.
1—De Laval Variable speed—375 h.p. at 125 pumps and 30 p.s.i. exhaust. Complete with gear reducer.

STOCK PUMPS
1—Shartle 10 x 26 Single Plunger Pump.

STOCK REGULATORS
2—Merritt Stock Regulators.

SUCTION PRESS ROLLS
1—Sandusky 97" drilled face x 14" diameter.

THICKENER
1—Wandel Thickener with anti friction bearing. Cylinder 40" diameter x 133" face.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. automatic 81" Perforator, slitter and Winder—with three motors—ball bearing.

VACUUM PUMPS
1—Nash H-5 Vacuum Pumps
2—Nash 24.
1—Nash 25.
1—Nash 22.

WATER FINISH UNIT
1—Valley Micronist Unit for water finish on paper—150" deckle.

WAXING MACHINES
1—64" Peterin complete from let off to single roll rewind section.
1—64" Sandel—complete from 2 roll let off to single roll rewind.

WHY LIST YOUR EQUIPMENT? — WE WILL BUY IT.

FOR SALE

Cameron Slitters

1—62" Type 10-S.
1—82" Type 8-S.
1—82" Type 40-2A.
1—42" Type 40-1-AF.

OTHER SLITTERS

1—84" Langston Type B.—Rewinds 50" diameter rolls.
1—52" Knowlton Combined Slitter and Rewinder and Rotary Sheet Cutter.
1—60" Hammermly Score Cut.
1—48" Meisel, Series O.P., Shear Cut.
1—30" Langston Type A Shear Cut S & R.
1—42" Langston Center Wind Duplex Shear Cut Slitter and Rewinder.
1—30" Fales Model B.
1—32" Hobbs Shear Cut, double rewind slitter and rewinder.

POWER PAPER CUTTERS

12—Seybold, 1—74", 10ZD, 20th Century, 44", 54" & 64" & 74", 1—40" & 1—50" 10Z, 1—40" 6Z. Holyokes, 34", 44", 48" and 54".
3—Oswegos; 38", 44" and 57"; 1—Sheridan, 60"; 1—Dexter, 57"; 2-Acme, 32" and 42"; 1—S&W Under Cut 60".

MISCELLANEOUS MACHINES

1—64" Creping machine, complete with automatic Kohler system.
Several Die Presses, Seybold and Sheridan, various sizes.
1—Hudson-Sharp #4 special Tissue Paper Folder.
1—Complete Set Potdevin S.O.S. Bag Machines—Range ½ to 2½'s.
1—72" x 45" Erie Layboy.
1—Modern Clipper Bag Machine for cellophane and plioflim materials. Makes flat or gusset bags, single or duplex, range 1½" to 9" in width, 2" to 27" in length.
1—53" Kronert (German) 2 color, roll to roll, Aniline Press.
1—New 24"-2 color, Roll to Roll Aniline Press.
1—72" Type A, Hudson-Sharp Automatic collapsing reel.
1—84" Miami lo-type Waxing Machine, manufactured by Diltz Machine Works with 1 refrigerating unit size 4" x 4".
2—Potdevin Waxing Machines, 52" wide.
1—Paper Converting Machine Co.'s Model No. 215, three web, ¼ fold napkin machine with embossing attachment.
1—Dexter Co.'s Pile Folder Machine.
1—77" Paper Towel Roll Converter.
1—81" Hudson-Sharpe 50-B Facial Toilet Converter.
1—Lawtomatic Model "A" Toilet Roll Wrapper.
2—81" Dietz Toilet Paper Converters, suitable for standard and facial tissue.
2—Brand new 81" Dietz, very latest type, friction rewind combination toilet and towel roll converters. Automatic counters and stop motions.
1—64" Dillon Duplex Rotary Sheet Cutter.
1—42" Hobbs Embosser, with Vickers 20 ton hydraulic pressure attachment.
2—22 Lamoye Pulpers.
1—49" German Dornbusch Embossing machine with 2 sets of embossing rolls.
1—36" Holyoke Roll to Roll Embosser, Heavy Type. Two extra new rolls, one steel and one paper.
1—36" Hot Melt Coating and Laminating Machine.
1—45" Robinson Rotary Card Cuter.
1—40 Norwood Plater, AC Reversing Motor Equipment.
1—20"Champlain 4 color Rotogravure Press.
1—116" Model 20 Hamblet Duplex Rotary Sheet Cutter, slitting attachment, Erie automatic layboy and twelve roll backstands.
1—74" Hamblet Duplex Rotary Sheet Cutter, slitting attachment, 8 roll backstands, Moore & White layboy, 15 HP Reliance Drive.
1—55" nine roll Holyoke Super Calender stack with AC motor equipment.
1—46" Holyoke, 6 Roll, Stack of Super Calenders.
1—Stande, "Champion" folding and glueing machine.
1—66" Parry Liner, 11 roll type. New 1949. Never used.
1—74" wide Hudson-Sharp Duplexing machine #398, 3 coating units, including asphalt.

GIBBS-BROWER CO., INC.

Please address reply to Room 902
21 East 40th Street, New York 16, N.Y.
Telephone Lexington 2-5759 J-13

FOR SALE

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3—42" Moore & White Sheeters, one with Layboy.
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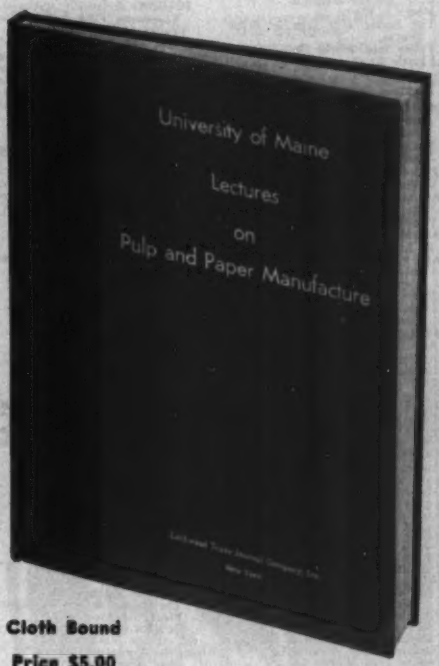

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Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
Bird Machine Company
Holyoke Machine Co.
J. M. Huber Corp.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Egan, Frank W., & Co.
Lovejoy Flexible Coupling Co.
John Waldron Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOW BOXES, STAINLESS-CLAD
Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Clark Equipment Company, Industrial Truck Division
Elwell Parker Elec. Co.
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

FURNACES
Hafft Company, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

GRAPPLES
Blaw-Knox Company

GRAVITY FILTERS
Holyoke Machine Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
John Waldron Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works

GUMS
National Starch Products, Inc.
Stein-Hall Co., Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.

HOSE (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Mopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL TRACTORS
Clark Equipment Company, Industrial Truck Division
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Brown Instrument Co.
Bunge Pulp & Paper Co.
Cambridge Instrument Co.
General Electric Company
W. & L. E. Gurley
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co
Williams Apparatus Co.

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Johnson Corp.
Lovejoy Flexible Coupling Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

JORDAN FILLINGS
Appleton Machine Co.
Baker Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Bros. Mch. Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Hoppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KRAFT WRAPPING PAPERS
Canadian Newsprint Service Co.

LABORATORY CORRUGATOR
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
Egan, Frank W., & Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
John Waldron Corp.

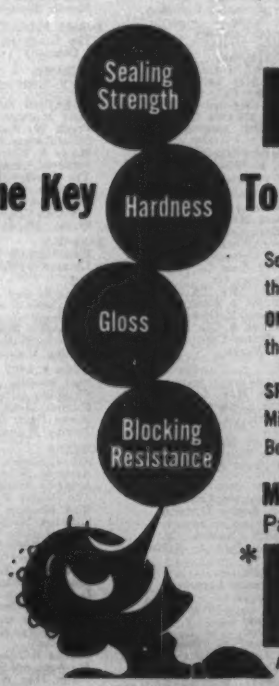
LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LIFT TRUCKS
Clark Equipment Company, Industrial Truck Division

LINTER COTTON
Alpha Cellulose Corp.
Railway Supply & Mfg. Co.

LINTER PULP
Alpha Cellulose Corp.

LUBRICANTS
Gulf Refining Co.
Sinclair Refining Co.



BALANCE

Is The Key To Outstanding Wax Performance!

Sealing Strength, Hardness, Gloss, Blocking Resistance — These are the qualities you demand of paper coated with unmodified paraffin wax.

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Moore & Munger—33 Rector Street New York 6

Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MAGAZINE REELS
Dilts Machine Works (Kohler Systems)

MATERIALS HANDLING
Clark Equipment Company
Industrial Truck Division
Cleveland Crane & Engrg. Co.
Dilts Machine Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
The Wellman Engrg. Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Stephens-Adamson Mfg. Co.
Testing Machines, Inc.

MICRO-CRYSTALLINE WAXES
Barco Oil Co.
Bunge Pulp & Paper Co.
Moore & Munger
Sun Oil Company

MOISTURE CONTENT CONTROL
Cambridge Instrument Co.
Stickle Steam Specialties Co.
Williams Apparatus Co., Inc.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Reliance Electric & Engrg. Co.

NEWSPRINT
Bunge Pulp & Paper Co.
Canadian Newsprint Supply Co.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

NOZZLES
Spray Engrg. Co.

PACKING BOXES
Clark Equipment Company
Industrial Truck Division
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.

PALLET TRUCKS
Clark Equipment Company
Industrial Truck Division

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Manchester Machine Co.
Rice Barton Corporation

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Bagley & Sewall Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lakeweld
Moore & White Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.

PARAFFINE WAXES
Moore & Munger
Sun Oil Company

PARAFFIN WAX EMULSIONS
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black Clawson Company
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PEBBLE MILLS
F. L. Smidth & Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.

pH METERS
Cambridge Instrument Co.
Thwing-Albert Instrument Co.

PIPE
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
National Tube Co.
Walworth Company

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
Walworth Co.

PITCH CONTROL
American Cyanamid Company
Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.

PLASTICIZERS
American Cyanamid Company
Industrial Chemicals Division
Akhvin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Naugatuck Chemical
Division of U. S. Rubber Co.
Nopco Chemical Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
J. O. Ross Engrg. Corp.
Lukenweld Division
Lukens Steel Company
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Egan, Frank W., & Co.
Manchester Machine Co.
Rice Barton Corporation

PRECISION SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Rice Barton Corporation

PRESSURE FILTERS
Holyoke Machine Co.

PRESSURE VESSELS
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.

PRESSES
Black Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
The Moore & White Co.
Potdevin Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULLEYS
Lovejoy Flexible Coupling Co.
Rice Barton Corporation

PULP CLASSIFIER
The Bauer Bros. Co.
Thwing-Albert Instrument Co.

PULP CLEANERS
Nichols Engrg. & Research Corp.

PULP STOCK VALVES
Crane Company
Record Pdg. & Mach. Co.
Shartle Brothers Machine Co.

PULPERS
Apmew, Inc.
Bauer Brothers Co.
Dilts Machine Works
E. D. Jones & Sons Co.
Morden Machines Co.
Shartle Brothers Machine Co.

PULPS
Alpha Cellulose Corp.
Brown Company
Bunge Pulp & Paper Co.
Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Reutigmache Co., Ltd.

PULPSTONES
Norton Company

PULP TESTERS
Paper and Pulp Testing Laboratories
Williams Apparatus Co., Inc.

PULVERIZING MILLS
Combustion Engineering-Superheater, Inc.
F. L. Smidth & Co.

PUMPS
Allis-Chalmers Mfg. Co.
Apmew, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connerseville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Moore & White Co.
Rice Barton Corporation
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout Waldron & Co., Inc.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
APMEW, Inc.
Allis-Chalmers Mfg. Co.
Bird Machine Company
General Electric Co.
Johnson Corp.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies

RESINS
American Cyanamid Company, Plastics & Resins Division
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical
Division of U. S. Rubber Co.
Nopco Chemical Co.
Plaskon Division,
Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co., Resinous Products Div.

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Lobdell United Co.
Edward J. McBride Co., Inc.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works (Kohler Systems)

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works (Kohler Systems)
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
Black Clawson Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

ROTARY KILNS
F. L. Smidth & Co.

ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

RUBBER PRODUCTS
The Goodyear Tire & Rubber Company

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bird Machine Company
Chicago Bridge & Iron Co.

SAWS
Simonds Saw & Steel Co.

SCALES
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
Bird Machine Company
Pitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.

SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.

SHEET MACHINES
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Valley Iron Works Co.
Williams Apparatus Co., Inc.

SHEETERS
Jagenberg-Werke Akt. Ges.

SHOWER PIPES
Bird Machine Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

SIZE PRESSES
Manchester Machine Co.
Rice Barton Corporation

SIZING
American Cyanamid Company
Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Stein-Hall Co., Inc.
Wyandotte Chemicals Corp.,
Michigan Alkali Div.

SIZING TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co
Williams Apparatus Co., Inc.

SLIME CONTROL
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Monsanto Chemical Co.
National Aluminate Corp.
Rohm & Haas Co.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp.,
Michigan Alkali Div.

SLITTERS
The Bagley & Sewall Company
Black Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Clark-Aiken Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Graphic Arts International Corp.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
Chicago Bridge & Iron Co.

SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SOLUBLE OILS
American Cyanamid Company,
Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

SPECIAL MACHINERY
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
John Waldron Corp.

SPLICING TISSUE
Bunge Pulp & Paper Co.
Williams-Gray Co.

STAINLESS STEEL
Armco Steel Corp.
Michigan Steel Casting Co.
U. S. Steel Corp.

STARCH
A. M. Meinebe & Son, Inc.
Canton Foods, Inc.
The Hubinger Co.
National Starch Products Inc.
Stein-Hall Co., Inc.

STEAM JOINTS
The Moore & White Co
Rice Barton Corporation
Shartle Bros. Mch. Co.

STEAM SPECIALTIES
Babcock & Wilcox Co.
Combustion Engrg. Co., Inc.
Johnson Corp.
Stickle Steam Specialties Co.

STEEL
Armco Steel Corp.
Carnegie Illinois Steel Co.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

STEEL, CLAD
Babcock & Wilcox Co.
Lukens Steel Company

STEEL TANKS
Chicago Bridge & Iron Co.
The Sandy Hill Iron & Brass Works

STRETCH TESTER
Thwing-Albert Instrument Co.

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Rice Barton Corporation
Shartle Brothers Machine Co.
Valley Iron Works Co.

SUCTION BOXES
Black Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

SUCTION ROLLS
Beloit Iron Works

SULPHITE SPECIALTIES
Canadian Newsprint Supply Co.

SULPHUR
Texas Gulf Sulphur Co.

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
American Cyanamid Company,
Calco Chemical Div.
Ansul Chemical Co.
Virginia Smelting Co.

SUPERCALENDERS
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

SYNTHETIC LATICES
American Cyanamid Company
Industrial Chemicals Division
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Naugatuck Chemical
Division of U. S. Rubber Co.
Nopco Chemical Co.

TAKE OFF UNITS
Dilts Machine Works (Kohler Systems)

TALC
American Cyanamid Company,
Industrial Chemicals Division
Vanderbilt Co., R. T.

TANKS
Chicago Bridge & Iron Co.
Kalamazoo Tank & Silo Co.
B. F. Perkins & Sons, Inc.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

TEARING TESTERS
Thwing-Albert Instrument Co.
Testing Machines, Inc.

TENSILE TESTERS
Bunge Pulp & Paper Co.
Thwing-Albert Instrument Co.
B. F. Perkins & Son, Inc.
Testing Machines, Inc.
Nopco Chemical Co.

THICKENERS, DECKERS AND SAVEALLS
The Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Chicago Bridge & Iron Co.
Dilts Machine Works
Downingtown Mfg. Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

TITANIUM
American Cyanamid Co., Calco Chemical Div.
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.

TOOLS
Walworth Company

TRACTORS AND TRUCKS
Clark Equip. Co. of Industrial Truck Div.
Elwell Parker Elec. Co.
Yourmotor Corp.

TRANSMISSIONS
Dodge Mfg. Corp.
Link Belt Company
Lovejoy Flexible Coupling Co.
Stephens-Adamson Mfg. Co.

TRAPS
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

TUBE MILLS
F. L. Smidth & Co.

TUBES
Babcock & Wilcox Co.
National Tube Co.

TUBING MACHINES
Dilts Machine Works

TUBING, MECHANICAL
National Tube Co.

TUBS
Shartle Brothers Machine Co.
Valley Iron Works Co.

TURBINES
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company

UNWINDERS
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Rice Barton Corporation
John Waldron Corp.

USED EQUIPMENT
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.
Shartle Brothers Machine Co.

V-BELTS
Lovejoy Flexible Coupling Co.

VALVES
The Bagley & Sewall Company
Crane Company
Dilts Machine Works
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Ronrod Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Walworth Company

VATS
Beloit Iron Works
Rice Barton Corporation

WASHERS
The Bagley & Sewall Company
Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

WASTE TREATING EQUIPMENT
Hungerford & Terry, Inc.

WATER CONDITIONING
Calgon, Inc.
General Dyestuff Corp.
Hungerford & Terry, Inc.
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Potdevin Machine Co.
Shartle Brothers Machine Co.
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Dilts Machine Works (Kohler Systems)
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John Waldron Corp.

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Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
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WET STRENGTHENING AGENTS
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Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.

WETTING AGENTS
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Industrial Chemicals Division
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Monsanto Chemical Company
Nopco Chemical Co.
Plaskon Division,
Libbey-Owens-Ford Glass Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.,
Michigan Alkali Div.

WHITE WATER TREATING EQUIPT.
Hungerford & Terry, Inc.
The Permutit Company
The Sandy Hill Iron & Brass Works

WINDERS & REWINDERS
The Bagley & Sewall Company
Beloit Iron Works
The Appleton Machine Co.
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Waldron Corp., John

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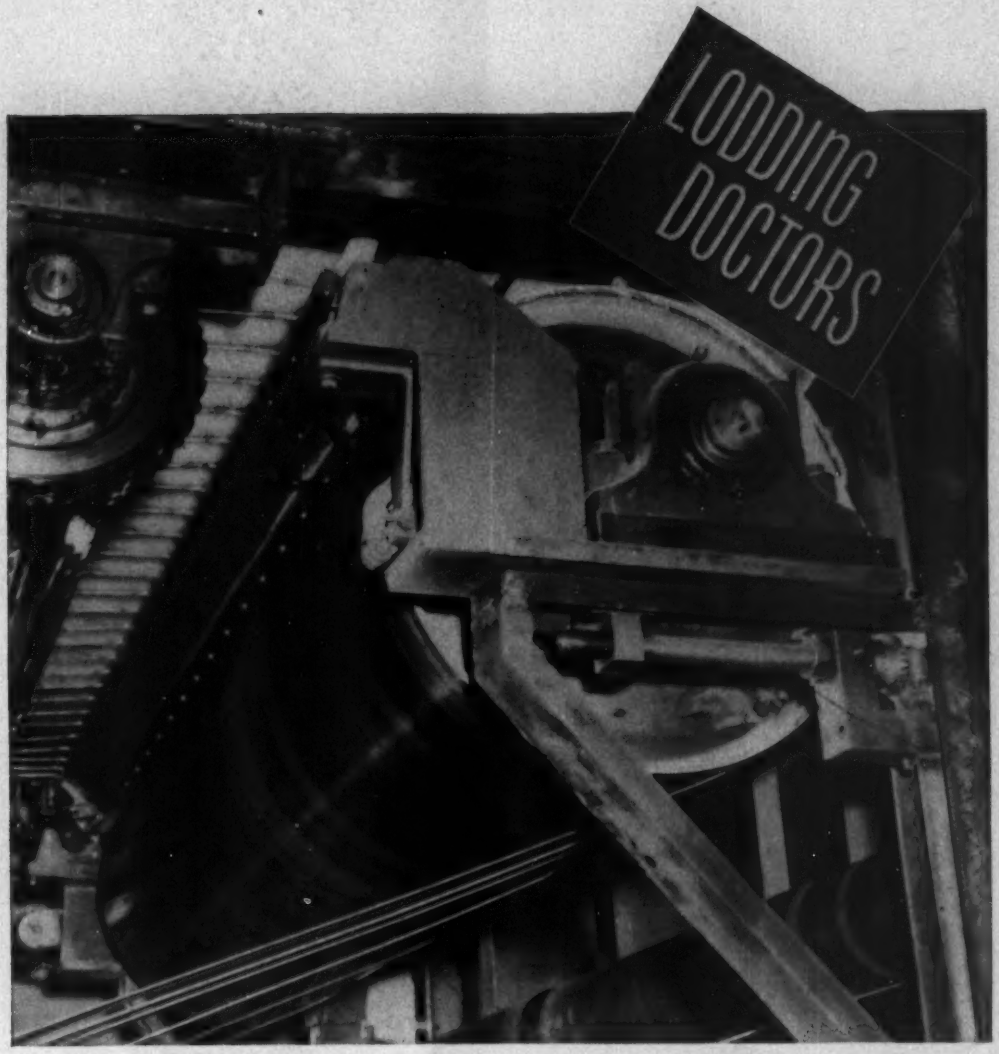

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